Technical Manual

TABLE OF CONTENTS

PSYCHOMETRIC PROPERTIES OF THE ERI®

The data reported below are based on a group of job applicants (n = 60,670) who completed the ERI as part of their pre-employment processing. This normative group of job applicants is drawn from all regions of the US, represents all 10 Standard Industrial classification (SIC) Code Divisions, 54 Major SIC Groups, and a wide range of job categories. As can be seen in Appendix A, applicants' results on each scale are distributed continuously along each of the behavioral-psychological dimensions measured by the ERI.

FREQUENCY DISTRIBUTIONS FOR THE ERI SCALES

The frequency distributions shown in Appendix A are reported in terms of discriminant scores. The frequency and percentile distributions for the ERI scales, using the eight-zone system, are reported in Appendix B and C.

DESCRIPTIVE STATISTICS

The descriptive statistics for the ERI scales can be found in Appendix D. To facilitate the use of these descriptive statistics when examining an individual applicant's results, they are reported in terms of the original eight-zone system of scores, rather than the discriminant scores. In reading this table, please note that for the mean, median, and mode, the values of the numbers to the left of the decimal point refer to the zone number in the eight-zone system.

For example, one can see that the mean for the Courtesy scale is 4.041. This indicates that the mean for this scale is in Zone 2B, but only slightly over the line from zone 2A. Similarly, the mean for the Safety scale is 3.937. This means that it is roughly nine-tenths of the way through zone 2A. The median for the Emotional Maturity scale is 3.000, meaning the median falls in zone 2A. Likewise, the standard deviation of the Conscientiousness scale is 1.698. This means that the standard deviation for this scale is roughly 1.7 zones of the eight-zone system.

INTERCORRELATION OF THE ERI SCALES

The correlation matrix of ERI scales shown in Appendix E appears to provide some support for the multifactorial view of behavior. For more information on this theory, please see the "The Multifactorial Nature of Unreliable and Unproductive Behaviour" section in the User's Manual.

TEST-RETEST RELIABILITY OF THE ERI SCALES

Test-retest reliability is the term used to describe the consistency of an individual's results over the course of separate administrations of a questionnaire or test. A procedure is considered to have good test-retest reliability if it gives roughly the same score or results for an individual each time. With specific reference to the scales on the ERI, test-retest reliability provides a measure of whether a given individual's ERI results consistently reflect his or her actual likelihood of reliable behavior or whether the ERI results from each administration are simply due to random variation, random error, or transient fluctuations in mood.

Using the Pearson product-moment correlation coefficient (r), the test-retest reliability of each of the ERI scales was computed, with the results shown in Appendix F.

RESPONSE DISTORTION AND ERI RESULTS

So-called "faking good" or response distortion is an issue of relevance to the use of psychological assessment techniques in pre-employment instruments, the ERI does not use a response distortion scale or "faking" scale. For this reason, it is of interest to examine whether results on any of the seven scales are significantly affected by an applicant's attempts to "fake good".

This issue has been examined in some detail (see Appendix T). In brief, correlation coefficients were computed between each of the seven ERI scales and three putative measures of response distortion the 16PF Motivation al Distortion scale, and the MMPI Lie and K scales. The results are shown in Appendix G. As can be seen, these data strongly support the conclusion that all seven ERI scales are free from the potentially confounding effects of response distortion.

FAIRNESS OF THE ERI AND ADVERSE IMPACT

Research has also been conducted to ascertain if use of the ERI results in adverse impact as defined in Section 4D of the Uniform Guidelines[1]. This research has examined the relative selection rates and impact ratios for each of the seven ERI scales, over a wide range of industry types and job categories, in terms of race, gender, and age.

It should be noted that in order to conduct these analyses, two assumptions must be made (though neither occur in the actual course of using the ERI as part of the selection process): (1) A fixed cut off score must be set for each of the seven ERI scales; and (2) Each of the applicant's ERI scale scores must be considered as the sole basis on which a selection decision is made.

RACE / ETHNICITY

Using the method described in the Uniform Guidelines on Employee Selection Procedures[2], the relative selection rates and impact ratios have been compared for Whites/Caucasians, Blacks/African-Americans, "Other races", and persons of Hispanic origin. A typical set of results is shown in Appendix H and I.

Using this method, for each of the seven ERI scales, it has also been consistently found that the impact ratios conform to the requirements of the "four-fifths rule of thumb" contained in the Uniform Guidelines. On this basis, it has also been concluded that use of the ERI does not result in adverse impact with respect to race.

GENDER

The relative selection rates and impact ratios have also been compared for females and males using the above-described method. The results for the same sample described in the previous section are shown in Appendix J and K.

Using this method, for each of the seven ERI scales, it has also been consistently found that the impact ratios conform to the requirements of the "four-fifths rule of thumb" contained in the Uniform Guidelines. On this basis, it has also been concluded that use of the ERI does not result in adverse impact with respect to gender.

AGE

The relative selection rates and impact ratios have also been compared for individuals younger and older than forty (40) years of age and males using the above-described method. The results for the same sample are shown in Appendix L and M.

Using this method, for each of the seven ERI scales, it has also been consistently found that the impact ratios conform to the requirements of the "four-fifths rule of thumb" contained in the Uniform Guidelines. On this basis, it has also been concluded that use of the ERI does not result in adverse impact with respect to age.

SUMMARY

In summary, when comparing the relative selection rates and impact ratios for each of the seven ERI scales, over a wide range of industry types and job categories, it has been consistently found that use of the ERI does not result in adverse impact with respect to race, gender or age.

COMPARISON BENCHMARKS

As of 2021, the scoring process for the ERI has been updated to a region-based, percentile-based comparative benchmark. These percentiles are based on the raw scores from the previously mentioned normative data. These benchmark groups also completed the assessment under pre-employment circumstances. More information for each benchmark can be found below.

[1] Bureau of National Affairs, Inc., Uniform Guidelines on Employee Selection Procedures. (Washington, D.C.: BNA Education Systems, 1979), pp.34

[2] Bureau of National Affairs, Inc., Uniform Guidelines on Employee Selection Procedures. (Washington, D.C.: BNA Education Systems, 1979), pp.34

NORTH AMERICA AND AUSTRALIA

This benchmark is based on 133,330 job applicants who completed the ERI as part of their pre-employment screening. This group is drawn from both the US (n = 83,825), Canada (n = 23,578) and Australia (n = 25,927), from a variety of industries and roles (including manufacturing, skilled trades or other entry-level roles).

The distribution of scores for each scale can be found in Appendix N.

LATIN AMERICA

This benchmark is based on 125,279 job applicants who completed the ERI as part of their pre-employment screening. Applicants lived in Latin America, with representation in Mexico, Columbia, Chile and Peru. This group is drawn from a variety of industries and roles (including manufacturing, skilled trades or other entry-level roles).

The distribution of scores for each scale can be found in Appendix O.

CONSTRUCT VALIDITY - CORRELATIONS WITH OTHER TESTS OF PERSONALITY

One primary source of validity evidence is known as "construct validity", which examines whether the test is appropriate to measure a particular psychological construct. The most popular method of examining construct evidence is to compare two different tests that are supposed to measure the similar constructs. For example, if the Safety scale on the ERI is valid, we should find similar scores (for an individual) on other tests or scales that measure safety behaviour or mindset. This section outlines the relationship between the ERI and other instruments.

COMPARISON OF THE ERI AND THE WORK PERSONALITY INDEX 2ND EDITION (WPI 2.0)

The WPI 2.0 contains 21 scales that measure aspects of personality and behaviour in a workplace context. As a result, it would be expected to see a number of correlations between reliability associated scales on the WPI 2.0 and similar scales on the ERI. A group consisting of 908 applicants were given both the ERI and the WPI 2.0 as part of their pre-employment screening process. The resulting correlational matrix can be found as Appendix P. Some noteworthy results include:

- There are aspects of higher self-control and stress tolerance involved in more courteous behaviour.
- Concern for others, persistence, self-control and stress tolerance influences conscientious behaviour.
- Those who were more trustworthy were more likely to also show concern for others, be more dependable, take more initiative, persist through challenges, plan their approach to tasks, follow the rules, show self-control and have a higher stress tolerance.
- Those who are more dependable, willing to take a leadership role and persistent are more likely to show commitment to their role and stay in their role longer.

COMPARISON OF THE ERI AND THE CALIFORNIA PERSONALITY INVENTORY 434 (CPI 434)

The CPI 434 contains 31 scales that measure general personality and behaviour. As a result, it would be expected to see a number of correlations between reliability associated scales on the CPI 434 and scales on the ERI. A group of 69 applicants were given both the ERI and the CPI 434 as part of their pre-employment screening process. The resulting correlational matrices can be found as Appendices Q, R and S. Some noteworthy results include:

- Those who are more disciplined will be more comfortable in a new environment when they identify the norms and expectations, and have the opportunity to adapt to them.
- Those who are more courteous are more likely to be creative and think outside of the box.
- Those who are emotionally mature are more likely to be socially mature also.
- Those who are more trustworthy are more likely to be socially mature, show higher levels of self-control, will want to make a good impression on others, will be more tolerant of others, and will generally be easier to "get along with". However, they may not always be seen as the most socially confident individual.

- Those who are more committed to their job are more likely to be socially mature, respectful of group norms, interested in learning more about others and feel fulfilled in life. They are also more likely to be comfortable building relationships with others, have a stronger work ethic, and more confident leaders.
- Those with a safety focus are more likely to be socially mature, and respectful of group norms.
- Those who are less self-disciplined, emotionally mature and safety-minded are more likely to emphasize negative aspects of themselves. Those who are more courteous are less likely to present themselves in an overly positive way. However, those who want to show a higher level of commitment to role are likely to "put their best foot forward" when presenting themselves.

VALIDITY CASE STUDIES

Another method of measuring the validity (or value) of an assessment is to determine whether or not the assessment achieves the results that it intends to when applied to a practical situation. These situations are often referred to as “case studies” or “validity studies”. For example, it would be expected that introducing the ERI into candidate screening processes should improve the quality of candidates who are hired, help with turnover issues (including for-cause termination), reduce inventory theft, and reduce the number of safety incidents. This section provides an overview of the existing body of research and their results. Detailed publications can be found in the specified appendices or through the provided reference.

TURNOVER RATE

Turnover rates have been a focal point for most case studies. As a result, there are many case studies across different industries. Overall, organizations have seen reductions in turnover anywhere between 21% and 75%.

- In the manufacturing industry, organizations saw a 30%-67% reduction in their turnover rates, seeing returns between $88,000 and $510,000. (Appendix U; Appendix AG; Appendix AF)
- Within resort hotels, organizations saw a 21%-36% reduction in their turnover rates, seeing returns between $190,000 and $1,400,000. (Appendix V; Appendix W; Appendix X; Appendix Y; Appendix Z)
- Various retail chains implemented the ERI to reduce their turnover rates by up to 54%. These organizations also experienced savings between $2,000,000 and $3,000,000. (Appendix AA; Appendix AB; Appendix AD; Appendix AE)
- A private security firm reduced their turnover by 43%, with an annual savings of $200,000. (Appendix AC)

FOR-CAUSE TERMINATIONS

- A manufacturing company reduced their for-cause terminations by 12% (Appendix AF) while another reduced their for-cause terminations by 50% (Appendix AG).
- A resort hotel reduced their for-cause terminations by 35%. (Appendix W; Appendix X)

WORK-RELATED ACCIDENTS

- A manufacturing firm reduced their workplace accidents by 50%. (Appendix T)
- One resort hotel reduced their workplace accident rate by 29% (Appendix W; Appendix X), while another reduced their accident rate by 58% (Appendix V).
- A retail chain reduced their workplace accidents by 16%.

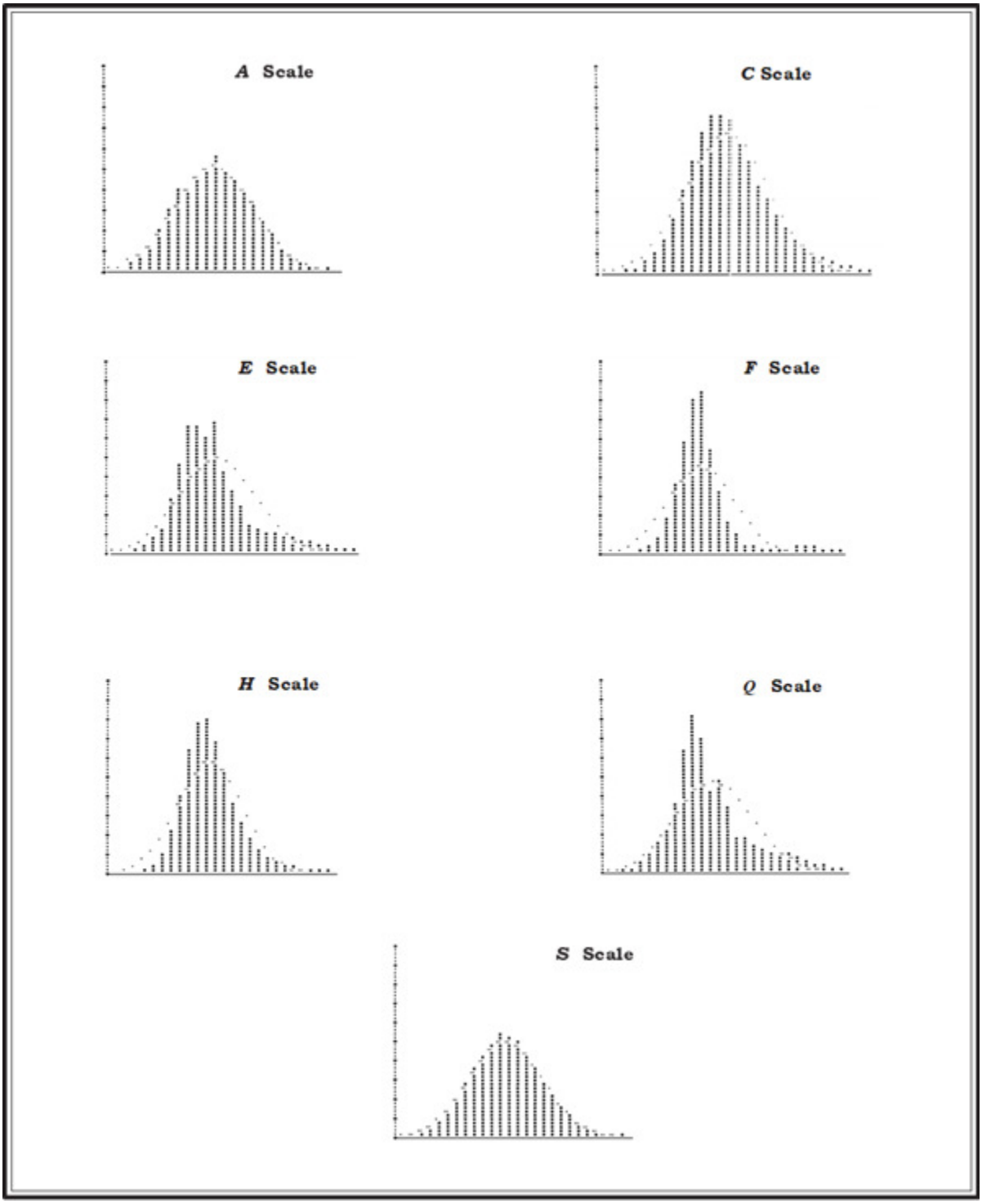
INVENTORY THEFT

- A retail chain reduced inventory shrinkage by 3.6%, with a value of $3,100,000. (Appendix AE)
- Case studies for another retail chain reports reduced inventory shrinkage, though it combined all of the measured results into a single annual savings value of $6,900,000, so it is unknown how much they saved from theft reduction specifically. (Appendix AA; Appendix AB)

LATENESS / ABSENCE

- A manufacturing facility reduced unapproved absences by 36%. (Appendix U)
- Case studies for retail chain reports reduced absences, though it combined all of the measured results into a single annual savings value of $6,900,000, so it is unknown how much they saved from this benefit specifically. (Appendix AA; Appendix AB)

APPENDIX A – FREQUENCY DISTRIBUTION OF DISCRIMINANT SCORES



NOTES:

- n = 60,670

APPENDIX B – FREQUENCY DISTRIBUTIONS (PERCENT)

	Zone 4		Zone 3		Zone 2		Zone 1	
Scale	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**
Self-Discipline	2.3	4.2	11.9	20.1	24.5	19.9	13	4.2
Courtesy	2.5	12.5	4.9	14.3	20.2	28.6	12.2	4.8
Emotional Maturity	4.9	3.6	4.9	8.9	22.3	34.1	16.4	4.8
Conscientiousness	7	1.1	1.7	2.8	18.7	36.1	23.8	8.8
Trustworthiness	1.9	1.6	3.1	7.5	18.8	32.8	25.8	8.6
Job Commitment	13.1	1.4	1.4	1.7	18.1	36.5	20.9	6.8
Safety	6	4.8	11.5	7.1	25.1	24	14.4	7.1

NOTES:

- n = 60,670
- The number represents the percentage of job applicants in the normative sample who fall into that particular zone.

APPENDIX C – FREQUENCY DISTRIBUTIONS BY APPROXIMATE PERCENTILE

	Zone 4		Zone 3		Zone 2		Zone 1	
Scale	**B**	**A**	**B**	**A**	**B**	**A**	**B**	**A**
Self-Discipline	0%	2%	6%	18%	38%	63%	83%	96%
Courtesy	0%	2%	15%	20%	34%	54%	83%	95%
Emotional Maturity	0%	5%	8%	13%	22%	45%	79%	95%
Conscientiousness	0%	7%	8%	10%	13%	31%	67%	91%
Trustworthiness	0%	2%	3%	7%	14%	33%	66%	91%
Job Commitment	0%	13%	14%	16%	18%	36%	72%	93%
Safety	0%	6%	11%	22%	29%	54%	78%	93%

NOTES:

- n = 60,670
- The number in each cell represents the approximate percentage of job applicants in the normative sample who obtained scores on that scale which were "poorer" than the job applicant's.

APPENDIX D – DESCRIPTIVE STATISTICS FOR THE ERI SCALES

Scale	Mean	Median	Mode	Standard Deviation	Variance	Standard Error
Self-Discipline	4.074	4.000	4.000	1.584	2.509	0.006
Courtesy	4.041	4.000	3.000	1.750	3.061	0.007
Emotional Maturity	3.678	3.000	3.000	1.650	2.723	0.007
Conscientiousness	3.274	3.000	3.000	1.698	2.884	0.007
Trustworthiness	3.159	3.000	3.000	1.440	2.074	0.008
Job Commitment	3.572	3.000	3.000	1.949	3.800	0.008
Safety	3.937	4.000	4.000	1.816	3.297	0.007

NOTES:

- n = 60,670

APPENDIX E – INTERCORRELATIONS BETWEEN ERI SCALES

Scale	Self-Discipline	Courtesy	Emotional Maturity	Conscient-iousness	Trustworth-iness	Job Commitment	Safety
Self-Discipline	1	-0.05	-0.35	0.29	0.41	0.1	0.19
Courtesy		1	-0.18	0	0.27	-0.11	0.25
Emotional Maturity			1	-0.13	-0.23	0.09	-0.25
Conscientiousness				1	0.35	0.07	-0.01
Trustworthiness					1	0.05	0.13
Job Commitment						1	-0.17
Safety							1

NOTES:

- n = 60,670
- Note: Emotional Maturity and Job Commitment are reverse scored in the assessment. As a result, any correlation presented above that includes one of these two scales should be inversed to understand the true nature of the relationship between the two scales (e.g. Emotional Maturity and Self-Discipline are actually positively related to each other, despite the correlation being negative).
- Some of the correlation coefficients appear to be significant, given the normal null hypothesis assumption of zero association between variables. However, it can be argued that such an assumption is inappropriate when working with behavioral variables, such as those being assessed here, since there is invariably some degree of association between variables which assess specific aspects of human behavior. In any event, even in the case of the largest correlation above (that between Self-Discipline and Trustworthiness), the coefficient of determination (r^2) is less than 0.25. Accordingly, these data are taken as providing support for the multifactorial perspective described earlier.

APPENDIX F – TEST-RETEST RELIABILITY OF THE ERI SCALES

Scale	r
Self-Discipline	0.89 *
Courtesy	0.68 *
Emotional Maturity	0.77 *
Conscientiousness	0.75 *
Trustworthiness	0.73 *
Job Commitment	0.85 *
Safety	0.83 *

NOTES:

- * $p < 0.01$
- $n = 30$
- Interval = 7 to 21 days

APPENDIX G – ERI SCALE CORRELATIONS WITH VARIOUS MOTIVATIONAL DISTORTION SCALES

ERI Scale	Correlation with the 16PF Fake Good Scale n = 420	Correlation with the MMPI Lie Scale n = 194	Correlation with the MMPI K Scale n = 194
Self-Discipline	-.05	-.01	.10
Courtesy	-.01	-.03	.11
Emotional Maturity	-.09	-.09	-.29
Conscientiousness	.05	.04	-.03
Trustworthiness	.01	.04	.04
Job Commitment	-.05	.01	.15
Safety	.06	.00	.15

APPENDIX H – SAMPLE DISTRIBUTION FOR THE ADVERSE IMPACT ANALYSIS BY RACE

Race	n
Whites / Caucasians	800
Blacks / African-Americans	400
Other Races	150
Hispanic Origin	(104)
Total	**1350**

NOTES:

- For purposes of categorizing the data, four racial groupings are used: White/Caucasian, Black/African-American, Other races, and Hispanic origin. This classification system was chosen because it is the one used by the Department of Commerce, Bureau of the Census (at the time of original study).
- It should be noted that persons of Hispanic origin may be of any race, therefore were analyzed as a separate category using members of the original sample. As a result, they do not count towards the "Total n" present in the chart (represented by placing the number in parentheses).

APPENDIX I – IMPACT RATIOS FOR THE ADVERSE IMPACT ANALYSIS BY RACE

Scale	Impact Ratios	%
Self-Discipline	BLACK / WHITE	83%
	OTHER RACES / WHITE	96%
	WHITE / HISPANIC ORIGIN	92%
	BLACK / HISPANIC ORIGIN	76%
	BLACK / OTHER RACES	87%
Courtesy	BLACK / WHITE	94%
	OTHER RACES / WHITE	100%
	WHITE / HISPANIC ORIGIN	95%
	BLACK / HISPANIC ORIGIN	89%
	BLACK / OTHER RACES	94%
Emotional Maturity	BLACK / WHITE	94%
	OTHER RACES / WHITE	87%
	WHITE / HISPANIC ORIGIN	89%
	BLACK / HISPANIC ORIGIN	94%
	BLACK / OTHER RACES	92%
Conscientiousness	BLACK / WHITE	96%
	OTHER RACES / WHITE	100%
	WHITE / HISPANIC ORIGIN	99%
	BLACK / HISPANIC ORIGIN	97%
	BLACK / OTHER RACES	96%
Trustworthiness	BLACK / WHITE	100%
	OTHER RACES / WHITE	89%
	WHITE / HISPANIC ORIGIN	93%
	BLACK / HISPANIC ORIGIN	93%
	BLACK / OTHER RACES	89%
Job Commitment	BLACK / WHITE	94%
	OTHER RACES / WHITE	96%
	WHITE / HISPANIC ORIGIN	99%
	BLACK / HISPANIC ORIGIN	95%
	BLACK / OTHER RACES	98%
Safety	BLACK / WHITE	97%
	OTHER RACES / WHITE	97%
	WHITE / HISPANIC ORIGIN	98%
	BLACK / HISPANIC ORIGIN	95%
	BLACK / OTHER RACES	100%

APPENDIX J – SAMPLE DISTRIBUTION FOR THE ADVERSE IMPACT ANALYSIS BY GENDER

Gender	N
Male	899
Female	451
Total	**1350**

APPENDIX K – IMPACT RATIOS FOR THE ADVERSE IMPACT ANALYSIS BY GENDER

Scale	Impact Ratios	%
Self-Discipline	MALE / FEMALE	87%
Courtesy	MALE / FEMALE	93%
Emotional Maturity	MALE / FEMALE	93%
Conscientiousness	MALE / FEMALE	93%
Trustworthiness	MALE / FEMALE	93%
Job Commitment	MALE / FEMALE	98%
Safety	MALE / FEMALE	93%

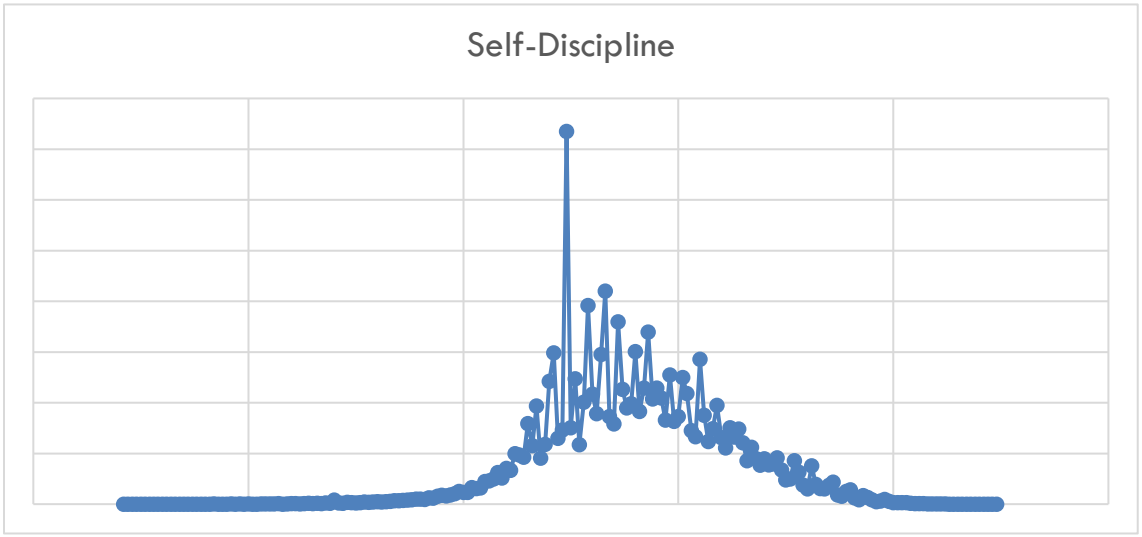
APPENDIX L – SAMPLE DISTRIBUTION FOR THE ADVERSE IMPACT ANALYSIS BY AGE

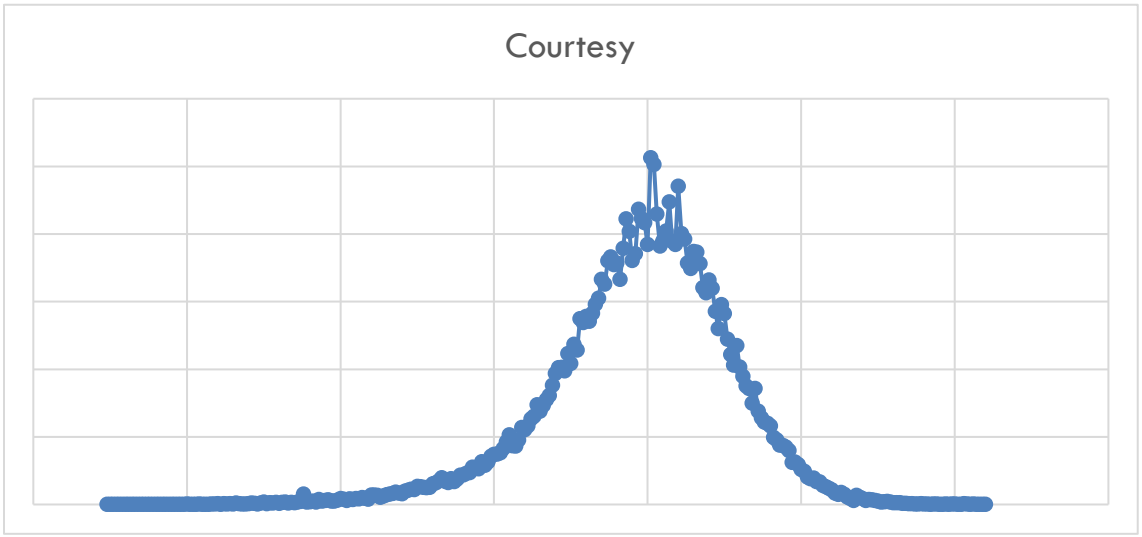
Age	N
Under 40	1060
40 and Older	290
Total	**1350**

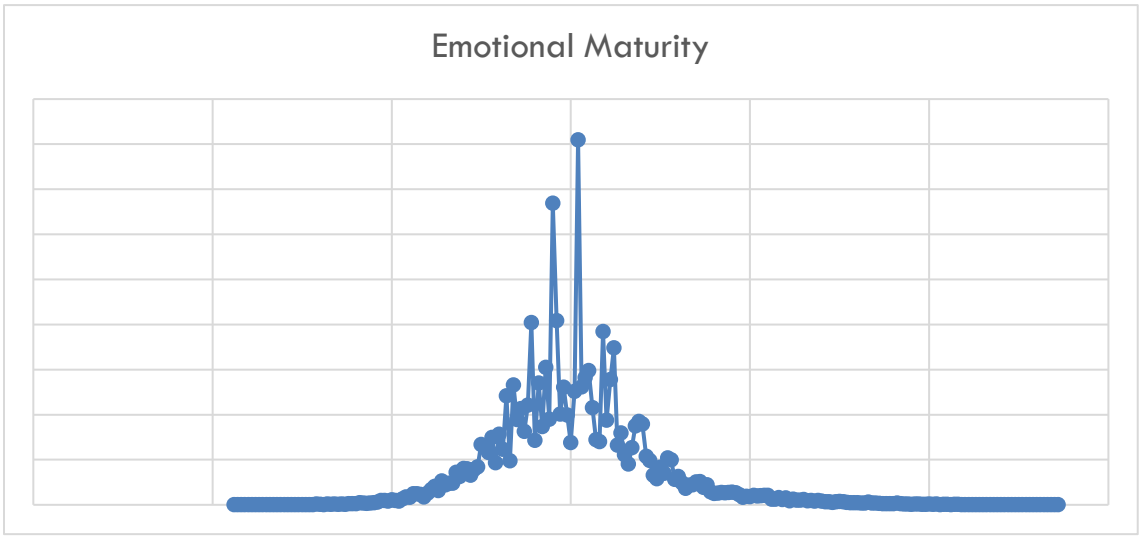
APPENDIX M – IMPACT RATIOS FOR THE ADVERSE IMPACT ANALYSIS BY AGE

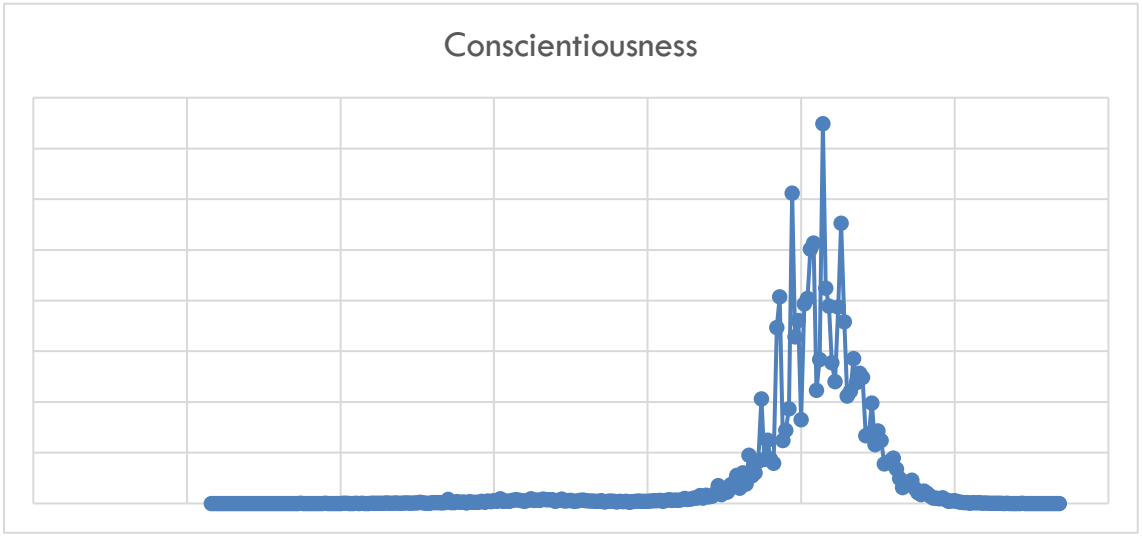
Scale	Impact Ratios	%
Self-Discipline	40 and Older / Under 40	80%
Courtesy	40 and Older / Under 40	94%
Emotional Maturity	40 and Older / Under 40	92%
Conscientiousness	40 and Older / Under 40	96%
Trustworthiness	40 and Older / Under 40	97%
Job Commitment	40 and Older / Under 40	96%
Safety	40 and Older / Under 40	96%

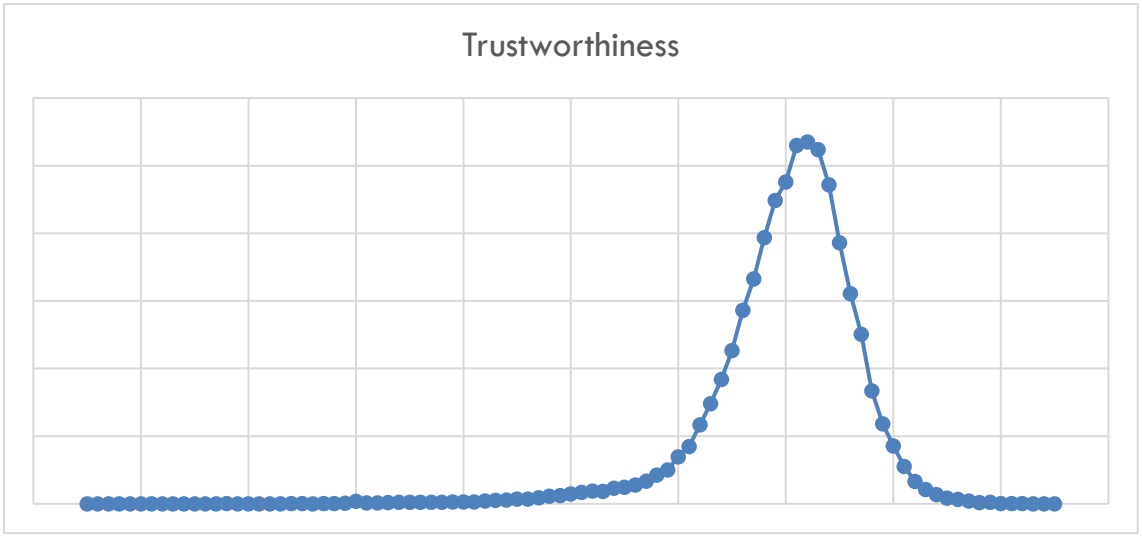
APPENDIX N – FREQUENCY DISTRIBUTION OF RAW SCORES (NORTH AMERICA + AUSTRALIA)



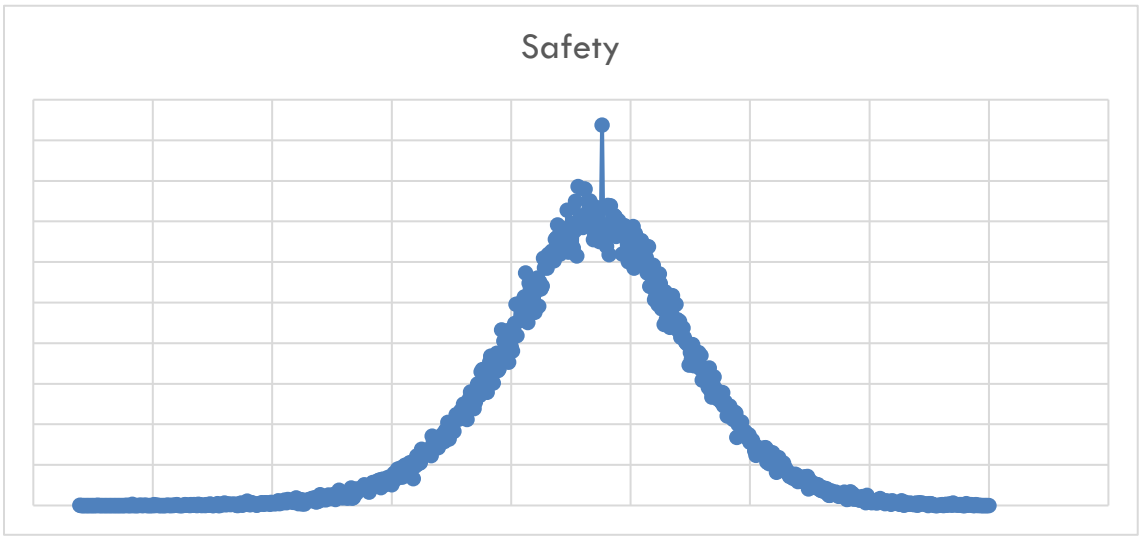




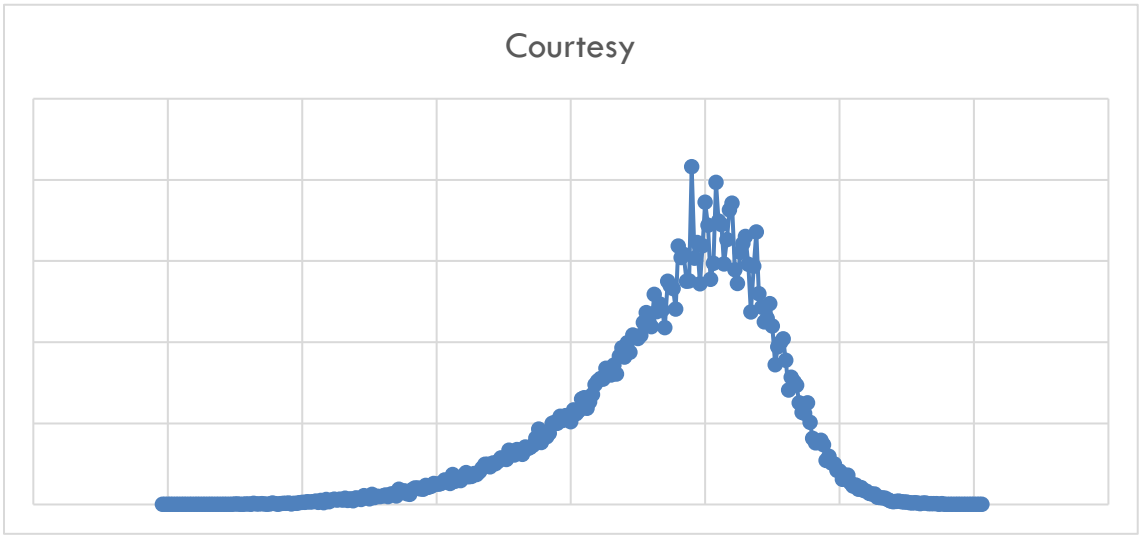

Conscientiousness

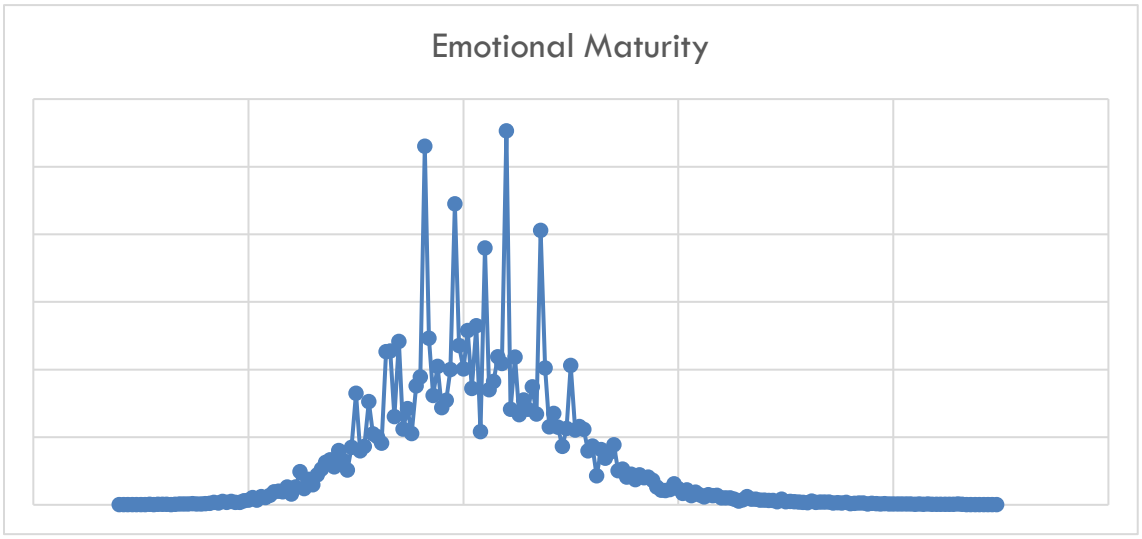

Trustworthiness

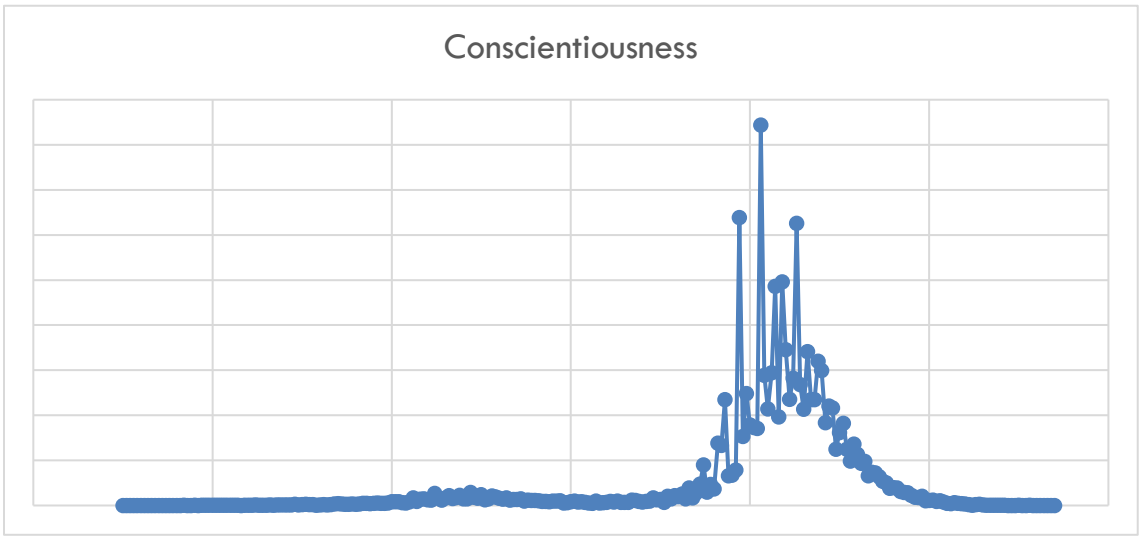

Job Commitment

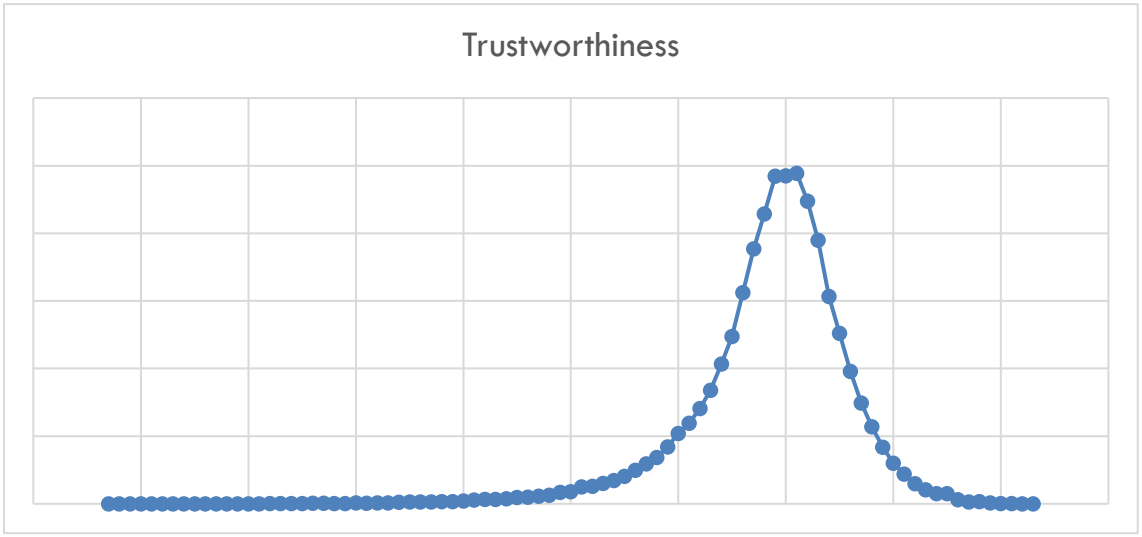

Safety

APPENDIX O – FREQUENCY DISTRIBUTION OF RAW SCORES (LATIN AMERICA)

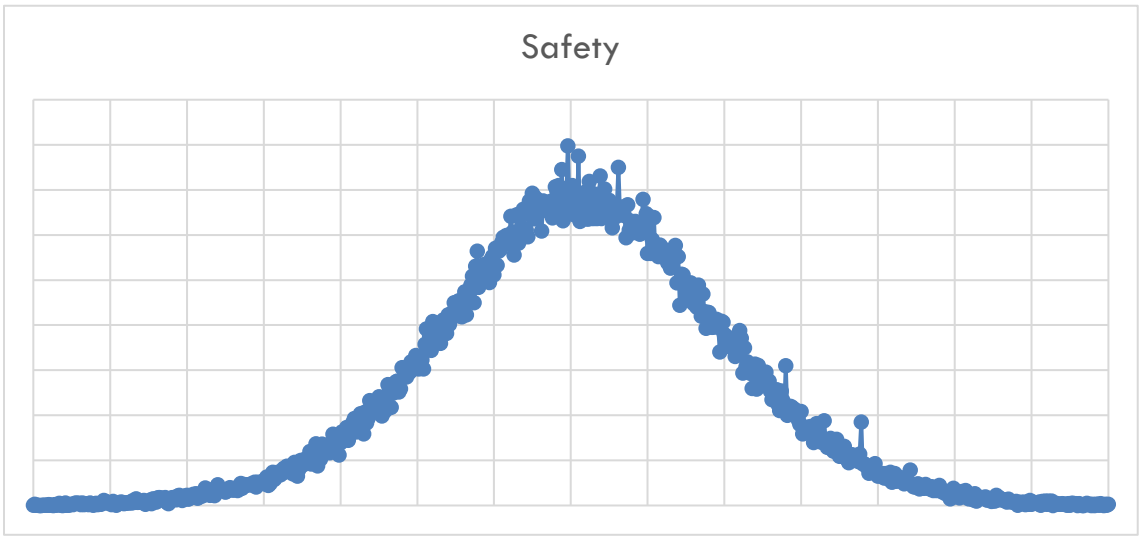





Conscientiousness


Trustworthiness


Job Commitment


Safety

APPENDIX P – CORRELATIONS BETWEEN THE ERI AND THE WPI2 CORE SCALES

Scale	Self-Discipline	Courtesy	Emotional Maturity	Conscient-iousness	Trustworth-iness	Job Commitment	Safety
Ambition	0.10	-0.04	-0.01	-0.03	0.01	0.12	-0.05
Analytical Thinking	0.01	-0.02	0.06	-0.11	-0.07	0.11	-0.06
Attention to Detail	0.10	-0.03	0.00	-0.05	-0.05	0.15	-0.06
Concern for Others	-0.12	-0.11	0.08	-0.18	-0.26	-0.01	0.00
Democratic	-0.02	0.02	-0.02	-0.03	-0.01	-0.04	0.00
Dependability	0.07	-0.14	0.06	-0.14	-0.20	0.15	-0.11
Energy	-0.02	-0.01	0.05	-0.14	-0.12	0.06	-0.03
Flexibility	0.04	0.02	0.03	0.07	0.13	0.02	0.00
Initiative	0.01	-0.13	0.07	-0.14	-0.17	0.13	-0.06
Innovation	0.02	-0.04	0.07	-0.09	-0.07	0.09	-0.08
Leadership	0.12	0.00	-0.03	0.01	0.05	0.17	-0.03
Multi-Tasking	0.03	0.01	0.04	-0.03	0.03	0.01	-0.02
Outgoing	0.06	0.01	0.06	-0.09	-0.04	0.13	-0.08
Persistence	0.01	-0.15	0.08	-0.18	-0.24	0.15	-0.06
Persuasion	0.04	-0.09	0.07	-0.08	-0.03	0.14	-0.08
Planning	0.01	-0.08	0.00	-0.08	-0.16	0.07	-0.04
Rule-Following	0.02	-0.11	0.04	-0.14	-0.23	0.06	-0.05
Self-Control	-0.02	-0.17	0.12	-0.23	-0.28	0.07	-0.11
Social Confidence	0.03	-0.13	0.10	-0.09	-0.12	0.14	-0.10
Stress Tolerance	0.02	-0.19	0.13	-0.17	-0.20	0.15	-0.11
Teamwork	0.05	-0.05	0.09	-0.11	-0.12	0.10	-0.11

NOTES:

- n = 908
- Scoring for Self-Discipline, Courtesy, Conscientiousness, Trustworthiness and Safety is reversed. As a result, lower scores indicate higher reliability on these scales.

APPENDIX Q – CORRELATIONS BETWEEN THE ERI AND THE CPI 434 CORE SCALES

Scale	Self-Discipline	Courtesy	Emotional Maturity	Conscient-iousness	Trustworth-iness	Job Commitment	Safety
Dominance	0.14	0.21	-0.23	-0.06	0.15	0.13	0.05
Capacity for Status	0.02	-0.04	-0.12	0.01	0.07	0.06	0.14
Sociability	0.09	0.16	-0.06	-0.06	0.14	0.11	0.03
Social Presence	-0.07	-0.19	0.02	0.00	0.23	0.01	0.05
Self-Acceptance	-0.01	-0.04	-0.09	-0.16	0.19	0.09	-0.01
Independence	0.06	-0.04	-0.17	0.04	0.01	0.17	0.00
Empathy	0.05	0.00	-0.10	-0.11	0.01	0.13	-0.02
Responsibility	-0.03	-0.02	-0.02	-0.11	-0.19	0.25	-0.09
Socialization	-0.14	0.14	0.24	-0.06	-0.32	0.26	-0.24
Self-Control	0.01	0.05	-0.02	-0.13	-0.38	0.17	-0.06
Good Impression	0.14	0.17	-0.06	-0.08	-0.25	0.21	-0.07
Communality	-0.33	0.13	0.32	0.09	0.03	0.29	-0.40
Well-Being	-0.08	0.13	0.14	-0.03	-0.19	0.27	-0.23
Tolerance	-0.09	-0.19	0.04	-0.13	-0.23	0.11	-0.13
Achievement via Conformance	0.24	0.13	-0.17	-0.03	-0.12	0.39	0.04
Achievement via Independence	-0.03	-0.06	0.01	-0.15	-0.16	0.11	-0.21
Intellectual Efficiency	-0.09	0.02	-0.03	-0.03	-0.12	0.30	-0.11
Psychological Mindedness	-0.05	0.00	-0.07	0.04	-0.08	0.28	-0.01
Flexibility	-0.03	-0.21	0.00	-0.12	0.14	-0.30	-0.01
Femininity / Masculinity	0.14	-0.01	0.17	-0.16	0.04	0.04	-0.06
V1	-0.16	0.00	0.13	-0.04	-0.31	-0.07	-0.06
V2	0.07	0.33	0.13	-0.05	-0.17	0.42	-0.22
V3	0.05	-0.06	-0.01	0.00	-0.05	0.25	-0.12

NOTES:

- n = 69
- Scoring for Self-Discipline, Courtesy, Conscientiousness, Trustworthiness and Safety is reversed. As a result, lower scores indicate higher reliability on these scales.

APPENDIX R – CORRELATIONS BETWEEN THE ERI AND THE CPI 434 COMPOSITE SCALES

Scale	Self-Discipline	Courtesy	Emotional Maturity	Conscient-iousness	Trustworth-iness	Job Commitment	Safety
Managerial Potential	0.00	0.05	-0.05	-0.07	-0.07	0.27	-0.12
Work Orientation	-0.10	0.15	0.15	0.02	-0.21	0.39	-0.20
Creative Temperament	-0.02	-0.36	-0.02	-0.06	0.09	-0.08	-0.04
Leadership Potential	0.07	0.12	-0.02	0.04	-0.04	0.38	-0.14
Amicability	-0.03	0.12	0.07	-0.09	-0.34	0.26	-0.20
Law Enforcement Orientation	-0.20	0.24	0.09	-0.10	-0.14	-0.02	-0.23
Tough-Mindedness	0.08	0.18	-0.07	-0.01	-0.15	0.22	0.00

NOTES:

- n = 69
- Scoring for Self-Discipline, Courtesy, Conscientiousness, Trustworthiness and Safety is reversed. As a result, lower scores indicate higher reliability on these scales.

APPENDIX S – CORRELATIONS BETWEEN THE ERI AND THE CPI 434 FAKING SCALES

Scale	Self-Discipline	Courtesy	Emotional Maturity	Conscient-iousness	Trustworth-iness	Job Commitment	Safety
Fake Bad	0.41	-0.09	-0.39	-0.06	-0.03	-0.20	0.46
Fake Good	0.22	0.24	-0.19	-0.08	-0.17	0.25	0.00

NOTES:

- n = 69
- Scoring for Self-Discipline, Courtesy, Conscientiousness, Trustworthiness and Safety is reversed. As a result, lower scores indicate higher reliability on these scales.

APPENDIX T – BOROFSKY (1992)

Assessing the Likelihood of Reliable Workplace Behavior: Further Contributions to the Validation of the Employee Reliability Inventory

Gerald L. Borofsky, Ph.D. (Harvard Medical School) (1992). Psychological Reports, 70, 563-592.

This paper summarizes a number of separate studies, all of which were designed to further examine the validity of the Employee Reliability Inventory (ERI).

The results summarized here are consistent with the original validation and cross-validation findings and provide further support for the validity of using the ERI scales to assess the likelihood of reliable workplace behavior in a population of job applicants.

Major Findings

- There was a significant disparity between the percentage of subjects who said that they came to work intoxicated (78%) or used alcohol/drugs on the job (70%) and the percentage of terminations for drug use or alcohol use on the job (12% and 18% respectively). This seems to indicate that there is a considerable amount of disruptive substance use in the workplace that is not responded to or goes undetected by management.
- The percentage of admissions of workplace theft (34%) was considerably larger than the percentage of terminations for workplace theft (7%). This seems to indicate that there is also a considerable amount of workplace theft that is not responded to or goes undetected by management.
- The ERI scales were effective in differentiating groups with documented histories of unreliable behavior, from a range of comparison groups, with a documented absence of unreliable behavior.
- Scores on the "A" scale (Freedom From Disruptive Substance Use) differentiated a representative sample of job applicants, as well as groups of individuals with a documented absence of unreliable behavior, from those individuals who anonymously admitted to the following forms of unreliable behavior: (1) current illegal drug/alcohol use interfering with work performance; (2) coming to work intoxicated; and (3) using alcohol/ illegal drugs on the job.
- Scores on the "E" scale (Emotional Maturity) differentiated a representative sample of job applicants, as well as groups of individuals with a documented absence of unreliable behavior, from those individuals who anonymously admitted to the following forms of unreliable behavior: (1) having been fired in the past for failure to perform properly on the job; (2) having been fired in the past for violent behavior on the job; and (3) having been convicted in the past five years for a violent crime (e.g., assault).
- Scores on the "F" scale (Conscientious Job Performance) differentiated a representative sample of job applicants, as well as groups of individuals with a documented absence of unreliable behavior, from those individuals who anonymously admitted to having been fired in the past for failure to perform properly on the job.
- Scores on the "H" scale (Trustworthy Job Performance) differentiated a representative sample of job applicants, as well as groups of individuals with a documented absence of unreliable behavior, from those individuals who anonymously admitted to the following forms of unreliable behavior: (1) stealing or taking materials without authorization from the workplace; (2) having been fired in the past for stealing on the job; and (3) a conviction in the past five years for a theft crime.
- Scores on the "E" scale (Emotional Maturity) were not correlated with the ten clinical scales of the Minnesota Multiphasic Personality Inventory (MMPI). However, they were correlated with scores on a number of special and supplementary scales of the MMPI which measure the presence of maladaptive personality traits. That is, construct-related evidence indicated that scores on the "E" scale do not assess applicants for the presence of a mental or psychological impairment or disorder or an applicant's general physical or psychological health. However, the "E" scale is effective in assessing for the presence of maladaptive personality traits, of the type that lead to disrupted job performance.
- Correlations between scores on each of the ERI scales, and measures of response distortion ("faking good") on the MMPI and Sixteen Personality Factor (16PF), were not statistically significant. This supports the position that "faking good" by a job applicant does not have a significant effect on the scores of any of the ERI scales.

APPENDIX U – BOROFSKY AND SMITH (1993)

Reductions in Turnover, Accidents and Absenteeism: The Contribution of a Preemployment Screening Inventory

Gerald L. Borofsky, Ph.D. (Harvard Medical School) & Michael Smith, B.S. (Collegeville, PA) (1993). Journal of Clinical Psychology, 49, 109-116.

This study examined the effects of introducing the Employee Reliability Inventory Screening System (ERI) into the hiring procedures of a middle-sized (500 employees) manufacturing company. The behavior of two groups of employees was compared for the calendar year 1989. One group had been hired without using the ERI as part of the selection process, while the other group was hired making use of ERI results as part of the selection process. There were statistically significant findings regarding four specific aspects of unreliable behavior: 1) Unplanned turnover; 2) Number of work-related accidents; 3) Hours of work lost due to work-related accidents; and 4) Hours of work lost due to unauthorized absences.

Major Findings

- There was a progressive decline in turnover rate for each of the two years following introduction of the ERI. During a 12 month "baseline" period prior to using the ERI, the turnover rate was 25.0%. During the first full calendar year after ERI use began, the turnover rate dropped to 20.7% while the following year (1989) it fell to 8.3%.
- The percentage of employees fired within 60 days of being hired fell from 17.5% of those hired during the "baseline" year to 8.3% of those hired during 1989. In similar fashion, the percentage of employees who quit within 60 days of being hired fell from 7.5% of those hired during the "baseline" year to 0% during 1989.
- During 1989, the number of work-related accidents for those hired without the ERI was 5.6% of the total work force. For those who were hired making use of ERI results, the rate of work-related accidents was only 2.8% of the total work force.
- During 1989, the number of hours lost from work-related accidents was 7.7% of the total annual scheduled hours for those hired without the ERI. For those who were hired making use of ERI results, the number of hours lost due to work-related accidents was only 1.8% of their annual scheduled total.
- For those hired without the ERI, the number of hours lost from unauthorized absence constituted 7.4% of the group's annual scheduled total. For those who were hired making use of ERI results, the number of hours lost from unauthorized absence was only 4.7% of their annual scheduled total.
- Preliminary benefit-cost analysis revealed direct cost savings of approximately
- $88,000 annually as a result of including the ERI as part of the organization's preemployment selection procedures.

APPENDIX V – BOROFSKY, BIELEMA & HOFFMAN (1993)

Accidents, Turnover and Use of a Preemployment Screening Inventory

Gerald L. Borofsky, Ph.D. (Harvard Medical School), Michelle Bielema and James Hoffman (Rockford, IL) (1993). Psychological Reports, 73, 1067-1076.

This study examined the effects of introducing the Employee Reliability Inventory Screening System (ERI) into the hiring procedures of a Midwestern resort hotel & conference center with approximately 360 employees in 25 departments. The study examined the rates of work-related accidents and turnover for the year prior to the start of ERI use, and for each of two subsequent years. There were statistically significant findings regarding work-related accidents and turnover.

Major Findings

- There was a progressive decline in the rate of work-related accidents for each of the two years following the introduction of the ERI. During the 12 month "baseline" period prior to using the ERI, the number of work-related accidents was 26.9% of the total work force. During the first 12 months after ERI use began, the rate of work-related accidents dropped to 18.6% while the following year it fell to 11.4%.
- There was also a progressive decline in turnover rate for each of the two years following the introduction of the ERI. During a 12 month "baseline" period prior to using the ERI, the turnover rate was 85.8%. During the first 12 months after ERI use began, the turnover rate dropped to 68.9% while the following year it fell to 56.8%.
- A conservative preliminary benefit-cost analysis revealed direct cost savings of approximately $190,000 annually as a result of including the ERI as part of the organization's preemployment selection procedures.

APPENDIX W – BOROFSKY & WAGNER (1993)

Reductions in Rate of Terminations for Cause: The Contribution of a Preemployment Screening Inventory

Gerald L. Borofsky, Ph.D. (Harvard Medical School) & Joan Wagner (Atlantic City, NJ) (1993) Psychological Reports, 72, 591-599.

This study examined the effects of introducing the Employee Reliability Inventory Screening System (ERI) into the hiring procedures of an East Coast resort hotel (approximately 3,800 employees). The specific behavior studied was termination for cause (e.g., falsification of information, misconduct, failure to perform satisfactorily on the job). The rates of termination for cause were examined for three groups of employees:

1) individuals hired between July 1 and August 31, 1991 without using the ERI;
2) individuals hired between July 1 and August 31, 1992 without using the ERI;
3) individuals hired between July 1 and August 31, 1992 making use of the ERI.

Major Findings

- Although there were no significant differences in the termination rates for the two groups of employees hired without the ERI, the rate of termination for cause in the group hired using the ERI was significantly lower.
- Even when all forms of turnover were taken into account (involuntary, voluntary, and administrative), the number of employees remaining on the job for more than 30 days was greater in the group hired using the ERI.
- A preliminary benefit-cost analysis of including the ERI as part of the organization's preemployment selection process reveals an estimated net savings of $226,130 in the first year and $229,730 per year in subsequent years.
- When corrected for the presence of likely confounding variables, the rate of termination for cause among employees hired using the ERI is less than one half that of employees hired without the ERI.
- Using these corrected rates, a preliminary benefit-cost analysis of including the ERI as part of the organization's preemployment selection process reveals an estimated net savings of $386,056 in the first year and $389,656 per year in subsequent years.

APPENDIX X – BOROFSKY, WAGNER & TURNER (1995)

Sustained Reductions in Turnover and Accidents Associated with the Ongoing Use of a Preemployment Screening Inventory: Results of a Three Year Study

Gerald L. Borofsky, Ph.D. (Harvard Medical School), Joan Wagner & Suzanne Turner (Atlantic City, NJ) (1995). Psychological Reports, 77, 195-204.

This study examined the effects of introducing the Employee Reliability Inventory Screening System (ERI) into the hiring procedures of an East Coast resort hotel (approximately 3,800 employees). The rates of turnover and work-related accidents over a three-year period were examined. Using a time series design, rates of turnover and work-related accidents were compared for a "baseline" year during which the ERI was added to the hotel's selection process and for each of the two following calendar years. There were statistically significant findings regarding turnover and work-related accidents.

Major Findings

- There was a progressive decline in turnover rate for each of the two years following t e "baseline" year. During the 12 month "baseline" period, the turnover rate was 41.7%. During the first full year of ERI use, the turnover rate dropped to 34.3% while the following year it fell to 30.5%. Over the study period, the turnover rate dropped from 41.7% to 30.5%, an overall reduction of 26.9%. Using the organization 's estimated average per employee replacement cost of $4,000, the associated gross savings in replacement costs for the study period was estimated at roughly $1,708,000.
- There was also a progressive decline in the rate of accidents for each of the two years following the "baseline" year. During the 12 month "baseline" period, the accident rate was 4.1% of the total workforce. During the first full year of ERI use the accident rate dropped to 3.0% while the following year it fell to 2.9% of the total workforce. For the study period, the overall reduction in accident rate was 29.3%. The associated gross savings in incurred costs were $647,851, an overall reduction of 73.6%.
- When adjusted for the direct cost of the ERI questionnaires and the opportunity costs associated with training and administration, the net savings from reduced turnover and accidents during the study period were estimated at $2,280,000.
- Possible interaction effects with the hotel's employee drug testing and risk management programs were examined, by comparing these results with those from a similarly designed study conducted at a different hotel. Employee drug testing did not appear to contribute to the observed results. However, the effects on workplace accidents appear to have been additively enhanced when inventory use is combined with a comprehensive program of risk management.

APPENDIX Y – BOROFSKY, GREEN, BURZICHELLI & PALUDI (1995)

Predicting Terminations for Cause and Failure to Successfully Complete a 90 Day Probationary Period of Employment

Gerald L. Borofsky, Ph.D. (Harvard Medical School), Janet Green, Dominick Burzichelli, & Louis Paludi (Atlantic City, NJ) (1995). Psychological Reports, 77(3), 1031-1040.

This study examined the relationship between use of the Employee Reliability Inventory Screening System (ERI), terminations for cause and failure to successfully complete a 90-day probationary period at an East Coast resort hotel. (approximately 3,600 employees). Of the 436 applicants hired during the study period, some were administered the ERI as part of their preemployment processing (N=158) while others were not (N=278). ERI results were available to recruiters during the pre-screening phase of the hotel's hiring process. Results were not available to departmental managers who interviewed applicants and made the actual hiring decisions. A review of the study procedure indicated that some recruiters made limited use of ERI results during the pre-screening phase. However, the ERI results were not systematically used in making overall hiring decisions.

Major Findings

- Among nonseasonal hires with valid ERI results, a relationship was observed between scores on the "Q" scale and subsequent employment history. The "Q" scale scores of employees who were terminated for cause were significantly poorer than those of employees who remained on the job for greater than 90 days and who were still employed at the end of the study period. Overall accuracy of the "Q" scale in predicting terminations for cause was 75.9%, and the range corrected correlation between "Q" scale scores and the number of days worked was 0.44 (N=58). It was estimated that if the ERI had been systematically used as part of making overall hiring decisions, this would have resulted in a decrease in the overall rate of turnover of four percentage points.
- "Q" scale scores were also associated with an employee's success in completing a 90-day probationary period. The "Q" scale scores of employees who were terminated for failing to successfully complete the probationary period were significantly poorer than those of employees who did complete the probationary period and who were still employed at the end of the study period. Overall accuracy of the "Q" scale in predicting successful completion of the 90-day probationary period was 88% and the range corrected correlation between "Q" scale scores and the number of days worked was 0.55.
- The net cost savings from these reductions in turnover were conservatively estimated as being more than $308,000 for the first full year of ERI use.

APPENDIX Z – BOROFSKY, ALEXANDER, COLEMAN, REIMERS, WACKENHEIM & MCCORMICK (1995)

Enhancing Courteous Job Performance: The Contribution of a Preemployment Screening Inventory

Gerald L. Borofsky, Ph.D. (Harvard Medical School) Jean Alexander, Roland Coleman, Craig Reimers, George Wackenheim (Atlantic City, NJ) & Bruce McCormick (Jacksonville, FL). (1995) Psychological Reports, 77, 43-50.

This study, conducted in a resort hotel with approximately 4,000 employees, examined the relationship between preemployment scores on the "C" scale of the ERI (a scale designed to assess the likelihood of courteous job interactions with customers or guests) and subsequent performance on the job. The scale was administered to job applicants, but results were not used in making hiring decisions. Subsequently, the questionnaires were scored and the results were compared to each individual's 90-day performance appraisal score. For the 71 employees whose jobs involved having direct face to face interactions with guests ("front of the house employees") there were statistically significant relationships between "C" scale scores and performance appraisal scores.

Major Findings

- A significant relationship was observed between applicants' scores on the "C" scale and their subsequent performance on the job. "C" scale scores differentiated individuals with above average performance appraisal ratings from those with below average ratings.
- The range corrected correlation between "C" scale scores and performance appraisal ratings was 0.35 (N=71).
- Overall accuracy in predicting the level of job performance was 65%.
- It was estimated that if the "C" scale had actually been used as part of the hiring process it would have resulted in the annual hiring of 13% more employees who would go on to receive above average performance appraisal ratings at the time of their 90-day evaluation.

APPENDIX AA – BOROFSKY, KLEIN & DAVIS (1993)

Preemployment Screening for Unreliable Work Behaviors: An Opportunity to Work Cooperatively With Human Resource Managers

Gerald L. Borofsky, Ph.D. (Harvard Medical School), Joseph Klein and Walter Davis (Carteret, NJ) (1993). Security Journal, 4, 185-192.

This study examined the relationship between use of the Employee Reliability Inventory Screening System (ERI) and subsequent measures of inventory shrinkage, job performance and turnover in a group of individuals employed by a national retail sales organization which operates approximately 125 stores and has approximately 2,700 employees. The ERI was administered to a group of job applicants in one district in the Northeastern United States and the results were used by store managers to assist them in making hiring decisions.

Major Findings

- There was a significant relationship between the amount of inventory shrinkage in a store and the number of employees hired making use of the ERI. When stores designated as having particularly high levels of inventory shrinkage were compared to those with lower shrinkage rates, it was found that the stores with the lower shrinkage rates had hired significantly more of their employees making use of the ERI as part of the hiring process.
- A significant correlation was observed between an individual's score on the "Q" scale (a scale designed to assess the likelihood of long-term job commitment) and his/her supervisor's ratings of on-the-job performance. Better scores on the "Q" scale were associated with better job performance ratings.
- There was a significant relationship between an individual's score on the "Q " scale and whether or not he/she had unauthorized latenesses once hired. The poorer the score on the "Q" scale, the greater the likelihood that the individual would have one or more unauthorized latenesses after being hired.
- There was a significant relationship between an individual's score on the "Q" scale and whether or not he/she had unauthorized absences once hired. The poorer the score on the "Q" scale, the greater the likelihood that the individual would have one or more unauthorized absences after being hired.
- There were significant relationships between an individual's scores on the "C" scale (a scale designed to assess the likelihood of courteous on-the-job behavior), the "Q" scale and the subsequent length of time he/she worked once hired. Those individuals who remained on the job for more than 60 days had better scores on the "C" and "Q" scales than those who worked for less than 60 days.

APPENDIX AB – BOROFSKY & KLEIN (1998)

The Use Of Preemployment Screening as Part of A Comprehensive Asset Protection Program: Examining the Incremental Effects on Inventory Shrinkage

Gerald L. Borofsky, Ph.D. (Harvard Medical School) & H. Joseph Klein (Carteret, NJ) (1998). Security Journal, 10, 23-28.

This study was conducted in 96 stores of a retail sales organization with annual sales in excess of $285 million. Store inventories were conducted in 1993 and 1994, and the change in percent of shrinkage from 1993 to 1994 was compared. Based on the 1993 inventory, stores having particularly high level of inventory shrinkage were designated as high shrinkage stores and during the following year were given a higher level of attention by the Asset Protection Department.

The shrinkage rate change in stores that administered ERI questionnaires as part of the hiring process (N=28) was compared to the shrinkage rate change in stores that did not (N=68). Shrinkage rate change was also compared for the high shrinkage stores (N=22) and the stores that received a normal level of asset protection programming (N=74). In addition, the study examined the incremental effects on inventory shrinkage associated with using the Employee Reliability Inventory Screening System (ERI) as one part of a comprehensive asset protection program.

Major Findings

- Across all stores, ERI use was associated with a decrease in the percent of shrinkage. Estimated average savings were $14,100 per million dollars of sales.
- The higher level of attention given to the high shrinkage stores by the Asset Protection Department was also associated with a decrease in the percent of shrinkage. Estimated average savings were $21,400 per million dollars of sales.
- Combined use of the ERI with a high level of asset protection programming produced the greatest decrease in the percent of shrinkage. Estimated average savings were $38,800 per million dollars of sales.

APPENDIX AC – BOROFSKY & WATSON (1994)

Prediction of Early Voluntary Turnover and Job Performance: The Contribution of a Preemployment Screening Inventory

Gerald L. Borofsky, Ph.D. (Harvard Medical School) & Robert Watson (Charlotte, NC) (1994). Psychological Reports, 74, 819-826.

This study used a predictive validation design to examine turnover and job performance in a group of 78 security officers employed by a private Southeastern contract security company with approximately 2,600 employees. The Employee Reliability Inventory (ERI) was administered in four districts, but was not used for making selection decisions.

Subsequent measures of job tenure were compared to scores on the "Q" scale (a scale designed to measure the likelihood of long-term job commitment). Job performance ratings were compared to scores on the "E" scale (a scale designed to measure the likelihood of emotionally mature behavior) and the "A" scale (a scale designed to measure the likelihood of work performance being free from the effects of disruptive alcohol and substance use).

Major Findings

- A relationship was found between an individual's scores on the "Q" scale and the total number of days he or she worked after being hired. Better scores on the "Q" scale were associated with more time on the job.
- There was a significant difference in the number of days worked by individuals with "good" scores on the "Q" scale (scores in Zones 1 through 3) as compared to those with "poor" scores (those in Zone 4).
- Without using the ERI to make hiring decisions, the rate of terminations within 60 days was 23% of the total hires. If the ERI had been used as part of the selection process, the rate of terminations would have been only 13% of the total hires. Using these figures, one can estimate the reduction in terminations that would result from using the inventory as part of the selection process. In this Company there are 2,000 new hires per year. If they are hired without using the inventory, the number of terminations within 60 days would be approximately 460 per year. If these individuals are hired using the inventory as part of the selection process, the number of terminations within 60 days would be approximately 260 per year. That is, using the ERI would result in an estimated reduction in turnover of 10% or 200 fewer terminations per year.
- The overall accuracy of "Q" scale scores in predicting length of job tenure was 75%.
- When corrected for range restriction, scores on the "E" and "A" scales appear to be a possible aid for predicting the quality of an individual's future performance on the job.

APPENDIX AD – BOROFSKY (2004)

Turnover Reduction Associated With Use Of The HR Pre-Qualify System In A Retail Chain

Gerald L. Borofsky, Ph.D. (2004) Bay State Psychological Associates, Inc. Boston, MA

This analysis examined the effects of introducing the Employee Reliability Inventory (ERI) into the hiring procedures of a Fortune 500 retailer with over 700 retail locations across the United States. Although the use of the ERI is associated with a wide range of improvements in hiring process efficiency and workforce effectiveness, the research contained in this report only examines the impact on turnover.

Starting with 105 retail locations, the ERI was progressively introduced into all locations over a period of approximately 12 months. In the fifteen months following the start of ERI use, there were a total of 11,289 new hires (including both management and entry-level positions). One group of 450 (approximately 4%) new employees were hired, making use of the ERI. The remaining group of roughly 10,839 (approximately 96%) were hired without using a pre-screen assessment.

Company-wide turnover data for each of these new hires were subsequently collected and analyzed. with the following results:

- For candidates who were hired making use of the ERI, the subsequent turnover rate was 32%.
- For candidates who were hired without using the ERI, the subsequent turnover rate was 69.28%.
- Return on Investment (ROI) analyses were conducted, using a conservative per employee replacement cost of $1,000. The results of these analyses show an annual ROI of 946%.
- These analyses also indicate that in order to cover the cost of the assessment usage, all that would have been required was a 5.1% reduction in turnover.

These findings and ROI calculations are entirely consistent with the existing body of published research, which has studied the impact of using the ERI as part of the hiring process. This research consistently indicates that use of the ERI is associated with reduced operating costs, which result from overall improvements in hiring process efficiency, as well as overall improvements in workforce effectiveness. The use of assessments in hiring is also consistently associated with:

1) a more efficient use of managers' time,
2) a more consistent and effectively managed hiring process,
3) consistent decreases in turnover, workers' compensation costs, compensated lost time, and inventory shrinkage, as well as
4) a workforce with a more productive work ethic and customer service orientation.

APPENDIX AE – BOROFSKY (2009)

Reductions In The Cost Of Inventory Shrinkage & Work Related Accidents, Associated With The Integrated Use Of The Employee Reliability Inventory (ERI®) System As Part Of An Online Store Level Hiring Process In A Retail Chain

Gerald L. Borofsky, Ph.D. (2009) Bay State Psychological Associates, Inc. Boston, MA

This report provides a summary of outcomes associated with the integrated use of the ERI, as part of an online store level hiring process. The study was conducted in a retail chain, with more than 45,000 employees and over 4,100 stores, located throughout the United States and Puerto Rico.

A previously-conducted study in this retail chain found that the integrated use of the ERI, as part of this online process, was associated with a 46.1% reduction in turnover.

The present study used this same integrated process to examine the effect on two additional sources of operating costs: (1) Inventory shrinkage and (2) Work-related accidents. The costs for both inventory shrinkage and work-related accidents were compared for three consecutive, non-overlapping 12-month periods:

1) Before implementation of the system;
2) During company-wide implementation of the ERI; and
3) After implementation of the ERI.

The sample consisted of 3,594 stores, which had been in operation during all three of these time periods.

Costs of Inventory Shrinkage:

As indicated on the following pages, over the course of the three comparison periods there was a progressive overall reduction of $3.1 million (3.6%) in the losses from inventory shrinkage.

Costs of Work-Related Accidents:

As indicated on the following pages, there was a slight increase in the number of OSHA reportable accidents between the pre-implementation and post-implementation periods (1%). However, in terms of the incurred costs associated with these accidents, there was an overall reduction of more than $1.5 million (16.1%) between the pre-implementation and post implementation periods. This means that although there were slightly more accidents in the post implementation period, there was a substantial decrease in the overall incurred costs associated with these post implementation accidents.

These findings are consistent with the existing body of research, which has studied the impact of using the ERI as an integrated part of a systematically structured hiring process. This research indicates that inclusion of the ERI is associated with a workforce having a more productive work ethic and customer service orientation, as well as decreases in turnover, workers' compensation costs, compensated lost time, and inventory shrinkage. Integrated use of the ERI in this manner also results in a more efficient use of store managers' time, as well as a more consistent and effectively managed hiring process.

APPENDIX AF – DEONARINE (2017)

Modular Building Manufacturer Uses Employee Reliability Inventory to Reduce Turnover by 44%

Justin M. Deonarine (2017). Psychometrics Canada. Edmonton, AB.

https://www.psychometrics.com/knowledge-centre/case-study/modular-building-manufacturer/

THE CHALLENGE

A modular building manufacturer with branches throughout the US possessed an overall turnover rate of 77%, with the majority of their turnover occurring in the Service, Administration and Transportation divisions. Due to the extensive training provided to new hires, the organization faced magnified turnover costs. They opted to re-evaluate their recruitment process and identified the ERI as the ideal tool to provide more information about the candidates prior to hiring them.

THE RESULTS

A total of 1781 candidates were considered in this case study. Of these candidates, 553 were considered prior to the implementation of the ERI (prior to March 2015), and 1228 were screened after the implementation of the ERI (from March 2015 to August 2017).

- Overall turnover reduced from 77% to 43%.
- For-cause terminations reduced from 21% to 9%.
- Resignations reduced from 38% to 28%.
- Estimated yearly turnover costs reduced from $922,000 (USD) to $412,000 (USD), given the extensive training that new employees received.

APPENDIX AG – BOROFSKY (2000)

Predicting Involuntary Dismissal for Unauthorized Absence, Lateness, and Poor Performance in the Selection of Unskilled and Semiskilled British Contract Factory Operatives: The Contribution of the Employee Reliability Inventory

Gerald L. Borofsky, Ph.D. (Harvard Medical School). Psychological reports, 87(1), 95-104.

This report contains the results of a predictive validity study, which examined the relationship between the employment status of a group of temporary contract operatives in a British factory, 90 days after being hired (N = 50) and their scores on the Employee Reliability Inventory.

ERI scores (specifically the Conscientiousness score) were found to be related to employment status. In particular, a 50% reduction in For-Cause Termination was observed. Those who were dismissed due to unauthorized absence, lateness, or poor performance had poorer scores than those who remained on the job.