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# Assessing Core Competencies: Results of Critical Thinking Skills Testing

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Graduating Seniors  
2019 Fañomnåkan (Spring)

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## Critical Thinking Skills Test Results Highlights

### 2019 Fañomnåkan

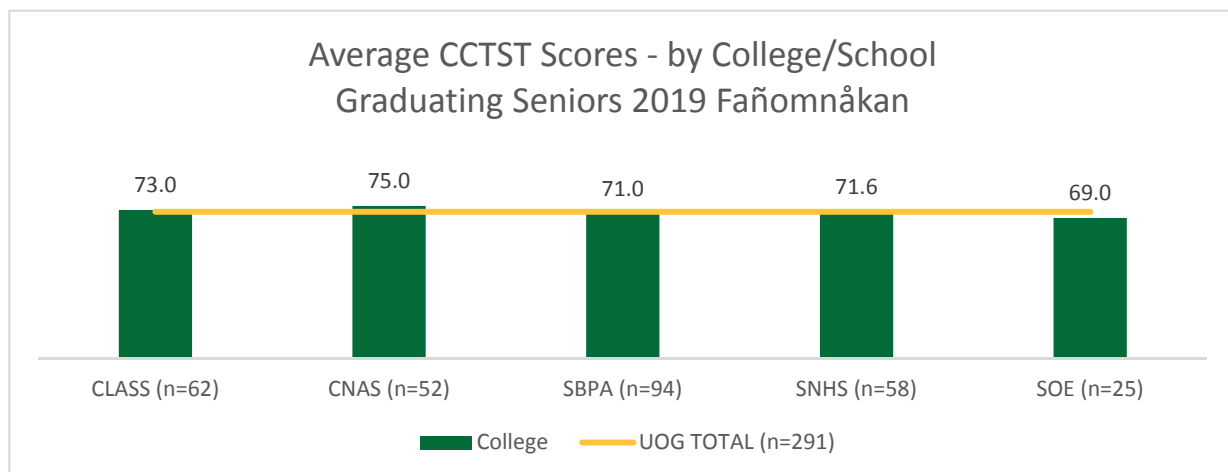
The California Critical Thinking Skills Test (CCTST) by Insight Assessment utilized by our University over the past 11 semesters runs on a 100-point scale with 50 being the lowest possible score. This Fañomnåkan, we saw the highest overall score for our 291 graduating seniors at **72.1** points which places them in the “Moderate” category (3 on a 5-point scale). Insight Assessment describes a student in the moderate category as someone with “the potential for skills-related challenges when engaged in reflective problem solving and reflective decision-making associated with learning or employee development.”

Along with the highest overall score, this Fañomnåkan our seniors also displayed the highest national average percentile score of **36** points. This percentile score is 7 points higher than when we first conducted testing in Fall 2014. When compared to the grouping of “Regional 4 Year Open-Enrollment Universities,” our average percentile score was 42 (as of November 2018).

A note of interpretation for the percentile scoring: A score that falls in the 40<sup>th</sup> percentile indicates that out of 100 test takers, roughly 60 would earn a higher score.

Since testing began, students have consistently scored the highest in the *Interpretation and Induction Skills* Category. In contrast, students have scored the lowest in the *Evaluation and Deduction Skills* Category. Descriptions of each skill and attribute tested are shown on page 4.

This report includes more detailed results of scores disaggregated by Major, and by College/School. To assure the privacy of our graduating seniors, we did not include data for majors with less than three students. The table below shows the average scores of students in each college/school with the UOG average trendline at 72.1





### Critical Thinking Skills Assessment - Graduating Seniors Median Scores

#### MEDIAN Scores

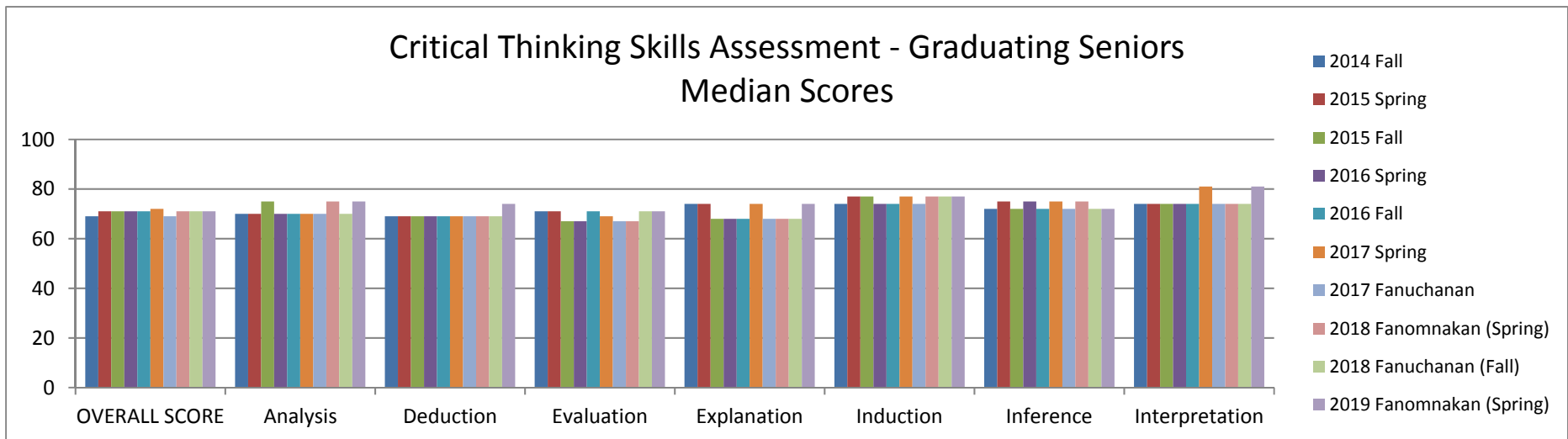
Skill/Attribute	2014 Fall	2015 Spring	2015 Fall	2016 Spring	2016 Fall	2017 Spring	2017 Fanuchanan	2018 Fanomnakan (Spring)	2018 Fanuchanan (Fall)	2019 Fanomnakan (Spring)	Ten-Semester Average
<b>N</b>	153	251	153	275	172	242	193	241	170	291	214.1
<a href="#">OVERALL SCORE</a>	69	71	71	71	71	72	69	71	71	71	71
<a href="#">Analysis</a>	70	70	75	70	70	70	70	75	70	75	72
<a href="#">Deduction</a>	69	69	69	69	69	69	69	69	69	74	70
<a href="#">Evaluation</a>	71	71	67	67	71	69	67	67	71	71	69
<a href="#">Explanation</a>	74	74	68	68	68	74	68	68	68	74	70
<a href="#">Induction</a>	74	77	77	74	74	77	74	77	77	77	76
<a href="#">Inference</a>	72	75	72	75	72	75	72	75	72	72	73
<a href="#">Interpretation</a>	74	74	74	74	74	81	74	74	74	81	75

Aggregate sample of CCTST Four Year College Students, **average**

<b>percentile score:</b>	29	32	30	31	30	34	29	33	31	36	32
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National Percentile Comparison Group for OVERALL SCORE: Regional 4 Yr Open-Enrollment Universities  
Percentile Score is time sensitive. Percentile Ranking as of November 2018.

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### Critical Thinking Skills Assessment - Graduating Seniors Mean Scores

#### MEAN Scores

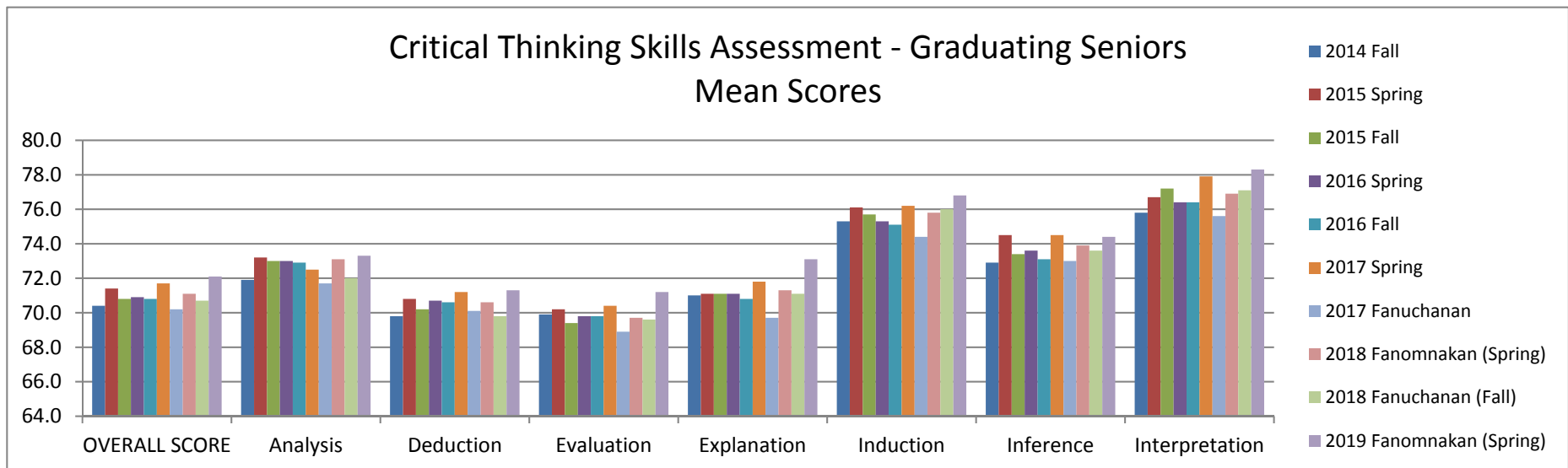
Skill/Attribute	2014	2015	2015	2016	2016	2017	2017	2018	2018	2019	Ten-
	Fall	Spring	Fall	Spring	Fall	Spring	Fanuchanan	Fanomnakan (Spring)	Fanuchanan (Fall)	Fanomnakan (Spring)	Semester Average
<b>N</b>	153	251	153	275	172	242	193	241	170	291	214.10
<b>OVERALL SCORE</b>	70.4	71.4	70.8	70.9	70.8	71.7	70.2	71.1	70.7	72.1	71.01
<a href="#">Analysis</a>	71.9	73.2	73.0	73.0	72.9	72.5	71.7	73.1	72.0	73.3	72.66
<a href="#">Deduction</a>	69.8	70.8	70.2	70.7	70.6	71.2	70.1	70.6	69.8	71.3	70.51
<a href="#">Evaluation</a>	69.9	70.2	69.4	69.8	69.8	70.4	68.9	69.7	69.6	71.2	69.89
<a href="#">Explanation</a>	71.0	71.1	71.1	71.1	70.8	71.8	69.7	71.3	71.1	73.1	71.21
<a href="#">Induction</a>	75.3	76.1	75.7	75.3	75.1	76.2	74.4	75.8	76.0	76.8	75.67
<a href="#">Inference</a>	72.9	74.5	73.4	73.6	73.1	74.5	73.0	73.9	73.6	74.4	73.69
<a href="#">Interpretation</a>	75.8	76.7	77.2	76.4	76.4	77.9	75.6	76.9	77.1	78.3	76.83

Aggregate sample of CCTST Four Year College Students, **average**

<b>percentile score:</b>	29	32	30	31	30	34	29	33	31	36	31.50
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National Percentile Comparison Group for OVERALL SCORE: Regional 4 Yr Open-Enrollment Universities

Percentile Score is time sensitive. Percentile Ranking as of November 2018. 42



**OVERALL**

The Reasoning Skills Overall score describes overall strength in using reasoning to form reflective judgments about what to believe or what to do. High Overall scores are attained by test takers who excel in the sustained, focused and integrated application of core thinking skills measured on this test, including analysis, interpretation, inference, evaluation, explanation, induction and deduction. The Overall score predicts the capacity for success in educational or workplace settings which demand reasoned decision making and thoughtful problem solving.

**INDUCTION**

Decision making in contexts of uncertainty relies on inductive reasoning. We use inductive reasoning skills when we draw inferences about what we think is probably true based on analogies, case studies, prior experience, statistical analyses, simulations, hypotheticals, and patterns recognized in familiar objects, events, experiences and behaviors. As long as there is the possibility, however remote, that a highly probable conclusion might be mistaken even though the evidence at hand is unchanged, the reasoning is inductive. Although it does not yield certainty, inductive reasoning can provide a confident basis for solid belief in our conclusions and a reasonable basis for action.

**EXPLANATION**

Explanatory reasoning skills, when exercised prior to making a final decision about what to believe or what to do, enable us to describe the evidence, reasons, methods, assumptions, standards or rationale for those decisions, opinions, beliefs and conclusions. Strong explanatory skills enable people to discover, to test and to articulate the reasons for beliefs, events, actions and decisions.

**INTERPRETATION**

Interpretative skills are used to determine the precise meaning and significance of a message or signal, whether it is a gesture, sign, set of data, written or spoken words, diagram, icon, chart or graph. Correct interpretation depends on understanding the message in its context and in terms of who sent it, and for what purpose. Interpretation includes clarifying what something or someone means, grouping or categorizing information, and determining the significance of a message.

**INFERENCE**

Inference skills enable us to draw conclusions from reasons and evidence. We use inference when we offer thoughtful suggestions and hypotheses. Inference skills indicate the necessary or the very probable consequences of a given set of facts and conditions. Conclusions, hypotheses, recommendations or decisions that are based on faulty analyses, misinformation, bad data or biased evaluations can turn out to be mistaken, even if they have been reached using excellent inference

**EVALUATION**

Evaluative reasoning skills enable us to assess the credibility of sources of information and the claims they make. And, we use these skills to determine the strength or weakness of arguments. Applying evaluation skills we can judge the quality of analyses, interpretations, explanations, inferences, options, opinions, beliefs, ideas, proposals, and decisions. Strong explanation skills can support high quality evaluation by providing the evidence, reasons, methods, criteria, or assumptions behind the claims made and the conclusions reached.

**ANALYSIS**

Analytical reasoning skills enable people to identify assumptions, reasons and claims, and to examine how they interact in the formation of arguments. We use analysis to gather information from charts, graphs, diagrams, spoken language and documents. People with strong analytical skills attend to patterns and to details. They identify the elements of a situation and determine how those parts interact. Strong interpretation skills can support high quality analysis by providing insights into the significance of what a person is saying or what something means.

**DEDUCTION**

Decision making in precisely defined contexts where rules, operating conditions, core beliefs, values, policies, principles, procedures and terminology completely determine the outcome depends on strong deductive reasoning skills. Deductive reasoning moves with exacting precision from the assumed truth of a set of beliefs to a conclusion which cannot be false if those beliefs are true. Deductive validity is rigorously logical and clear-cut. Deductive validity leaves no room for uncertainty, unless one alters the meanings of words or the grammar of the language.

**CCTST OVERALL Scores** can be interpreted as to their relative strength using qualitative descriptors. This is useful for studying both individuals and groups.

<b>Superior:</b> This result indicates critical thinking skill that is superior to the vast majority of test takers. Skills at the superior level are consistent with the potential for more advanced learning and leadership.
<b>Strong:</b> The result is consistent with the potential for academic success and career development.
<b>Moderate:</b> This result indicates the potential for skills-related challenges when engaged in reflective problem solving and reflective decision-making associated with learning or employee development.
<b>Weak:</b> This result is predictive of difficulties with educational and employment related demands for reflective problem solving and reflective decision making.
<b>Not Manifested:</b> This result is consistent with possible insufficient test taker effort, cognitive fatigue, or possible reading or language comprehension issues.

Table 1. Qualitative descriptors of the strength of CCTST OVERALL Scores

Table 2 displays the score ranges that correspond to the qualitative descriptions in Table 1. A score of 86 and higher for CCTST OVERALL indicates a superior score. This score is currently earned by approximately 15% of the undergraduate national sample (2018). Scores of 69 and lower display weak overall skill or no manifestation of critical thinking skills, and have been associated with poor performance educationally, in the workplace, and on professional licensure examination.


	<b>Qualitative Description of CCTST OVERALL Score</b>				
	<b>Not Manifested</b>	<b>Weak</b>	<b>Moderate</b>	<b>Strong</b>	<b>Superior</b>
<b>CCTST OVERALL Score 100-point versions</b>	<b>50-62</b>	<b>63-69</b>	<b>70-78</b>	<b>79-85</b>	<b>86 or higher</b>

Table 2. Qualitative Description of the OVERALL Score

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Customer: Univ Guam - Assessment  
 Test/Survey: California Critical Thinking Skills Test - 10.1.10  
 Report Date: 3/31/2019 7:54:42 PM  
 Assignment: 17 - 2019 Fanomnakan Graduating Seniors

California Critical Thinking Skills Test (CCTST). The CCTST measures the reasoning skills human beings use in the process of reflectively deciding what to believe or what to do.

Skill/Attribute Name	N	Mean	Median	Standard Deviation	SE Mean
OVERALL	291	72.1	71	6.5	0.4
Analysis	291	73.3	75	8.0	0.5
Interpretation	291	78.3	81	8.4	0.5
Inference	291	74.4	72	6.9	0.4
Evaluation	291	71.2	71	8.1	0.5
Explanation	291	73.1	74	9.8	0.6
Induction	291	76.8	77	6.8	0.4
Deduction	291	71.3	71	7.0	0.4

Skill/Attribute Name	Minimum	Maximum	Quartile 1	Quartile 3
OVERALL	58	94	68	76
Analysis	55	95	65	80
Interpretation	55	100	74	87
Inference	58	97	69	78
Evaluation	55	96	67	75
Explanation	55	94	68	81
Induction	58	95	71	82
Deduction	58	95	66	77

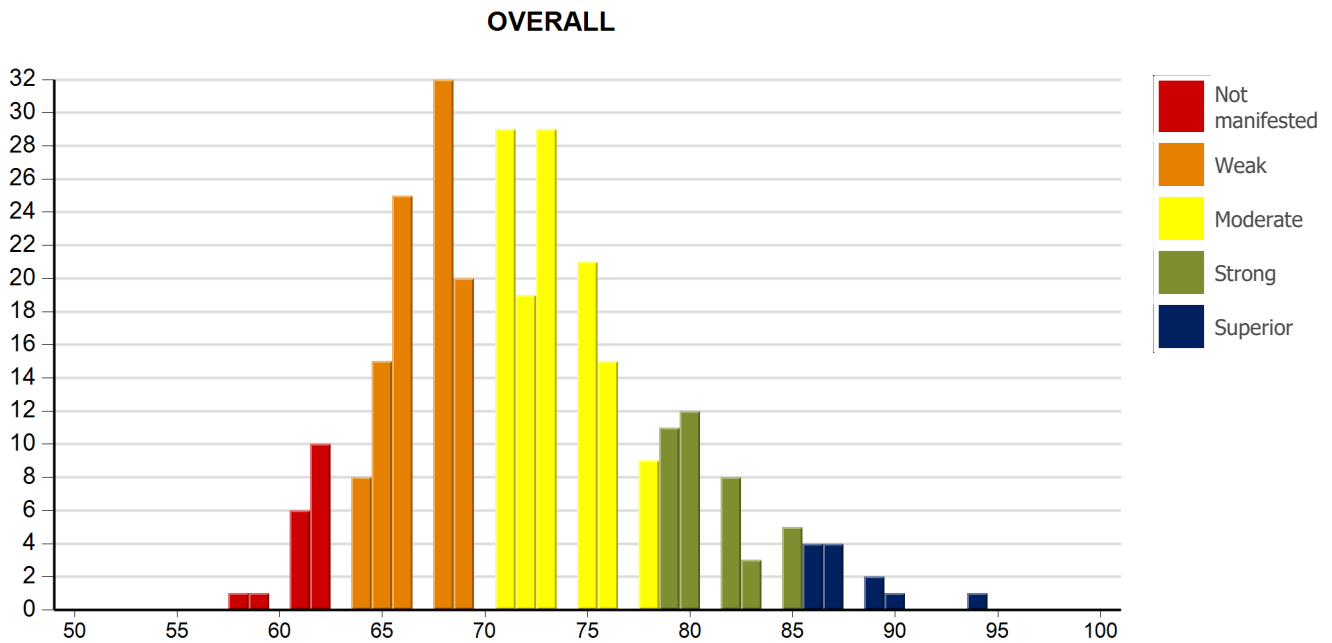
Based on the distribution of the overall score percentiles for the test takers in this group, as compared to an aggregate sample of CCTST Four Year College Students, the average percentile score of this group of test takers is 36.



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**Descriptive Information: OVERALL**

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
291	72.1	71.0	6.5	0.4	58	94	68.0	76.0



The Overall Score describes overall strength in using reasoning to form reflective judgments about what to believe or what to do. To score well overall, the test taker must excel in the sustained, focused and integrated application of core reasoning skills including analysis, interpretation, inference, evaluation, explanation, induction and deduction. The Overall Score predicts the capacity for success in educational or workplace settings which demand reasoned decision making and thoughtful problem solving.

The descriptive information reported below indicates strengths and weaknesses in specific areas. These results are useful for understanding group characteristics, for comparing and contrasting similar groups on specific attributes or skills, and for guiding the development of more targeted educational or training programs.

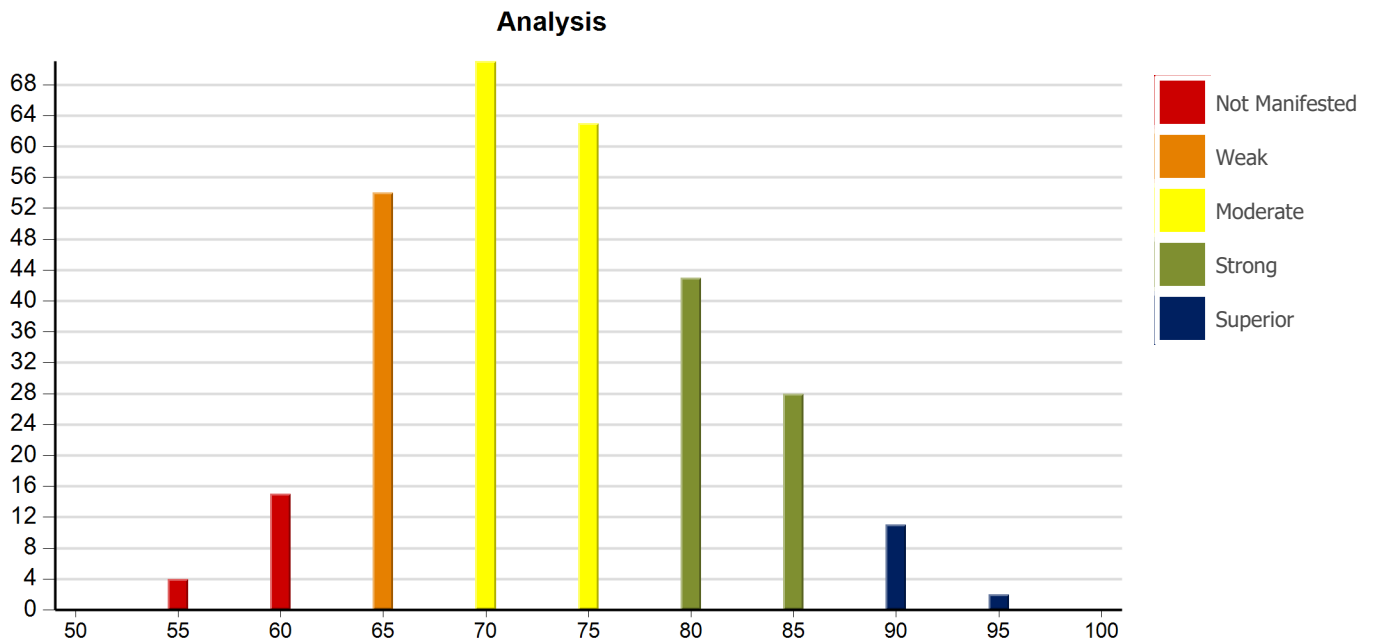




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**Descriptive Information: Analysis**

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
291	73.3	75.0	8.0	0.5	55	95	65.0	80.0



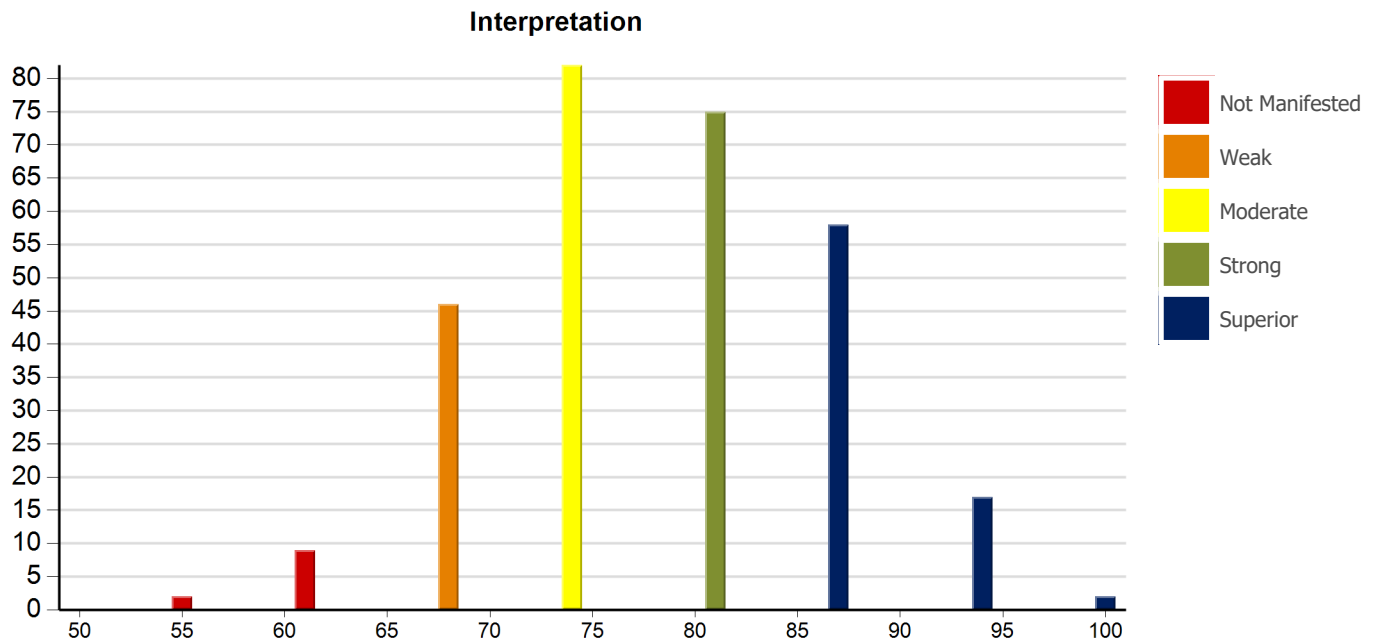
Analytical skills are used to identify assumptions, reasons, themes, and the evidence used in making arguments or offering explanations. Analytical skills enable us to consider all the key elements in any given situation, and to determine how those elements relate to one another. People with strong analytical skills notice important patterns and details. People use analysis to gather the most relevant information from spoken language, documents, signs, charts, graphs, and diagrams.



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**Descriptive Information: Interpretation**

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
291	78.3	81.0	8.4	0.5	55	100	74.0	87.0



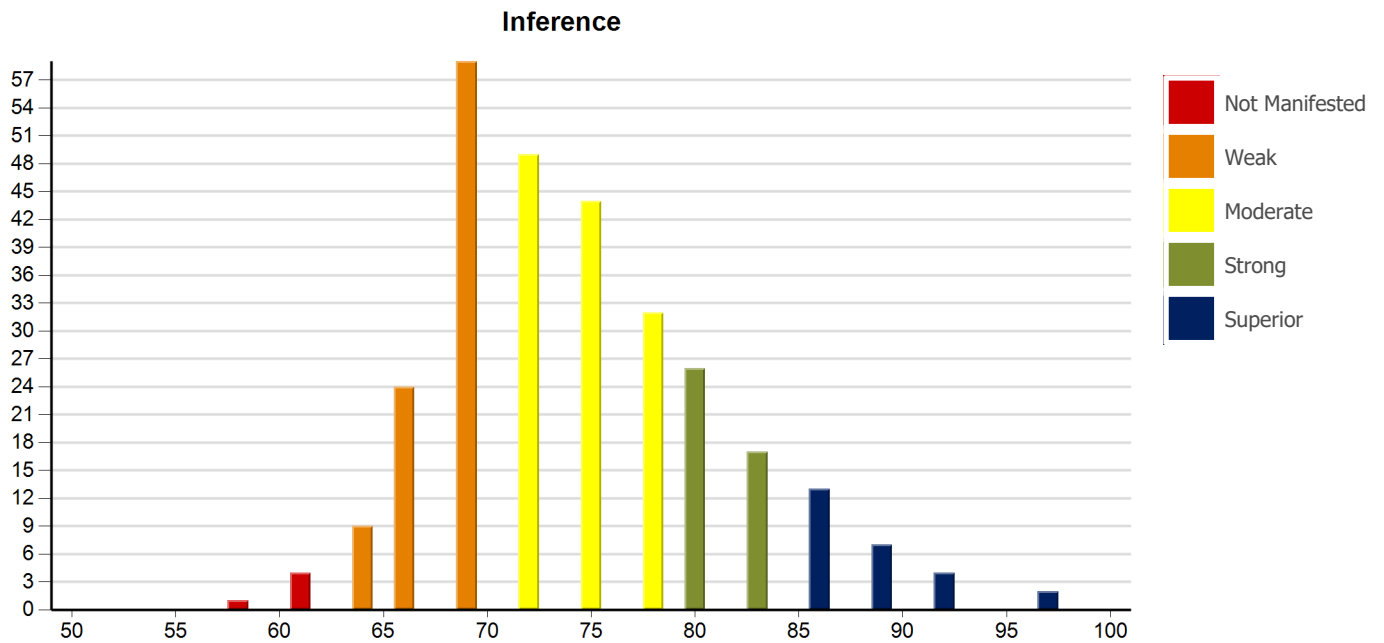
Interpretation is the process of discovering, determining, or assigning meaning. Interpretation skills can be applied to anything, e.g. written messages, charts, diagrams, maps, graphs, memes, and verbal and non-verbal exchanges. People apply their interpretive skills to behaviors, events, and social interactions when deciding what they think something means in a given context.



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**Descriptive Information: Inference**

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
291	74.4	72.0	6.9	0.4	58	97	69.0	78.0



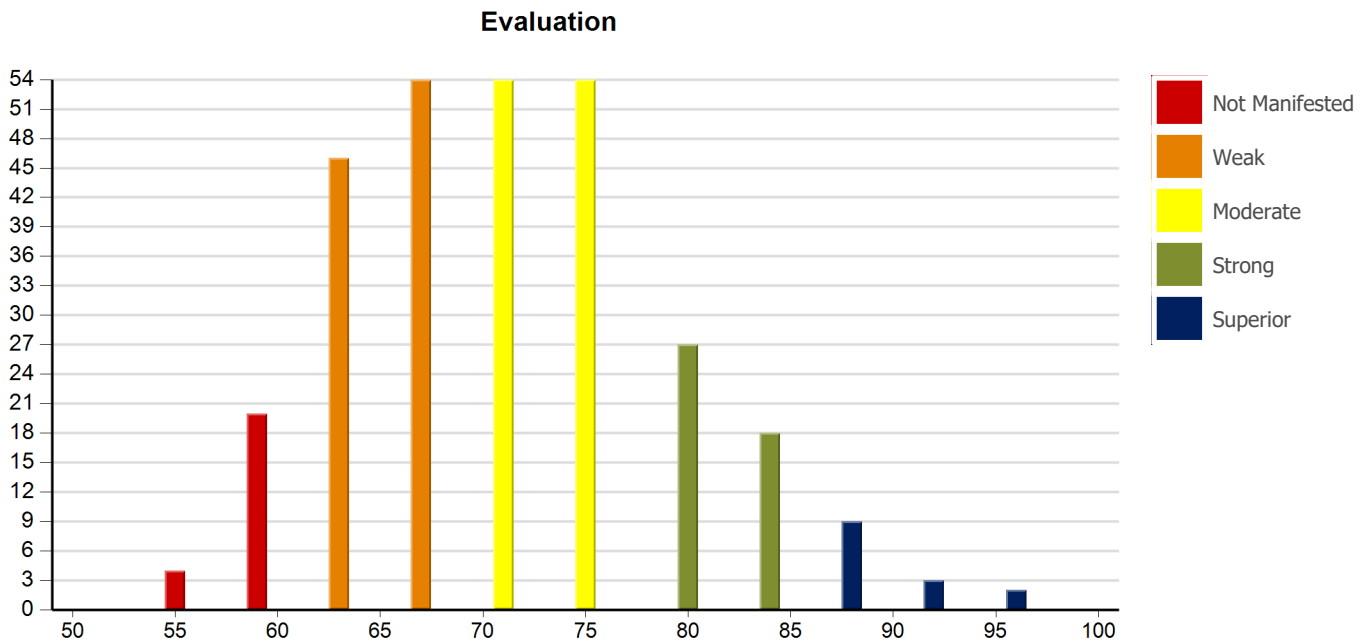
Inference skills enable us to draw conclusions from reasons, evidence, observations, experiences, or our values and beliefs. Using Inference, we can predict the most likely consequences of the options we may be considering. Inference enables us to see the logical consequences of the assumptions we may be making. Sound inferences rely on accurate information. People with strong inference skills draw logical or highly reliable conclusions using all forms of analogical, probabilistic, empirical, and mathematical reasoning.



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**Descriptive Information: Evaluation**

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
291	71.2	71.0	8.1	0.5	55	96	67.0	75.0



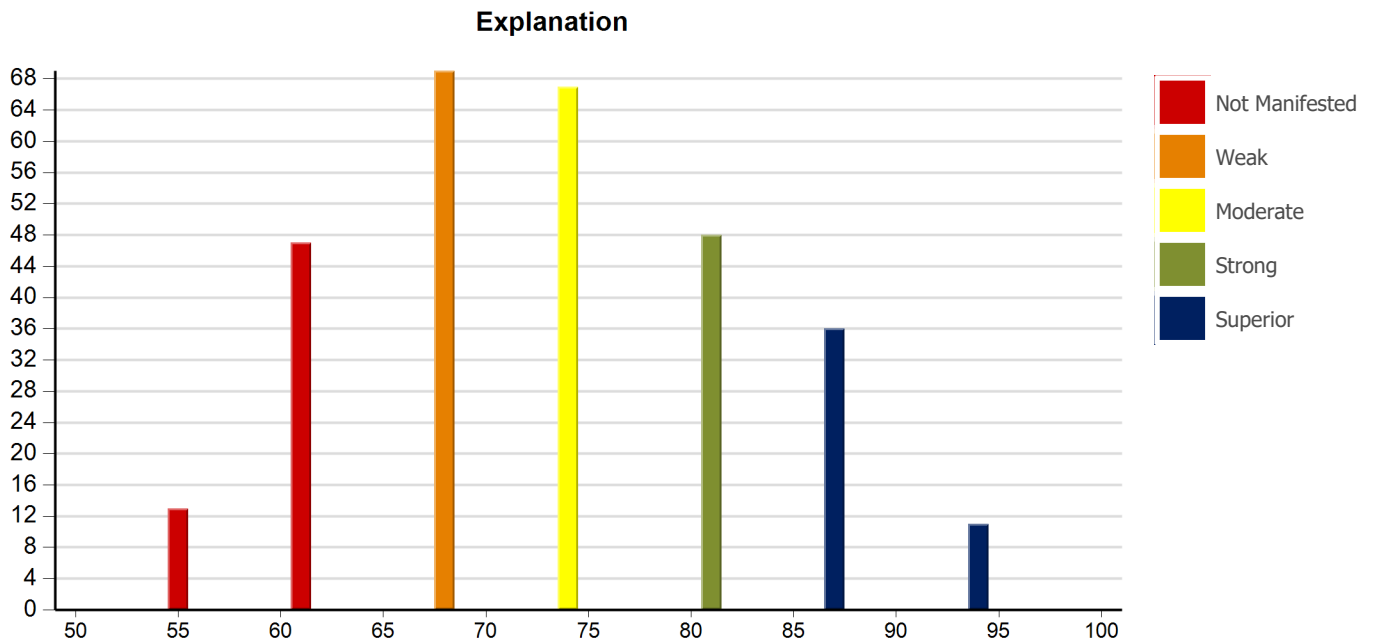
Evaluative skills are used to assess the credibility of the claims people make or post, and to assess the quality of the reasoning people display when they make arguments or give explanations. We can also apply our evaluation skills to assess the quality of many other elements that are important for good thinking, such as analyses, interpretations, explanations, inferences, options, opinions, beliefs, hypotheses, proposals, and decisions. People with strong evaluation skills can judge the quality of arguments and the credibility of speakers and writers.



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**Descriptive Information: Explanation**

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
291	73.1	74.0	9.8	0.6	55	94	68.0	81.0



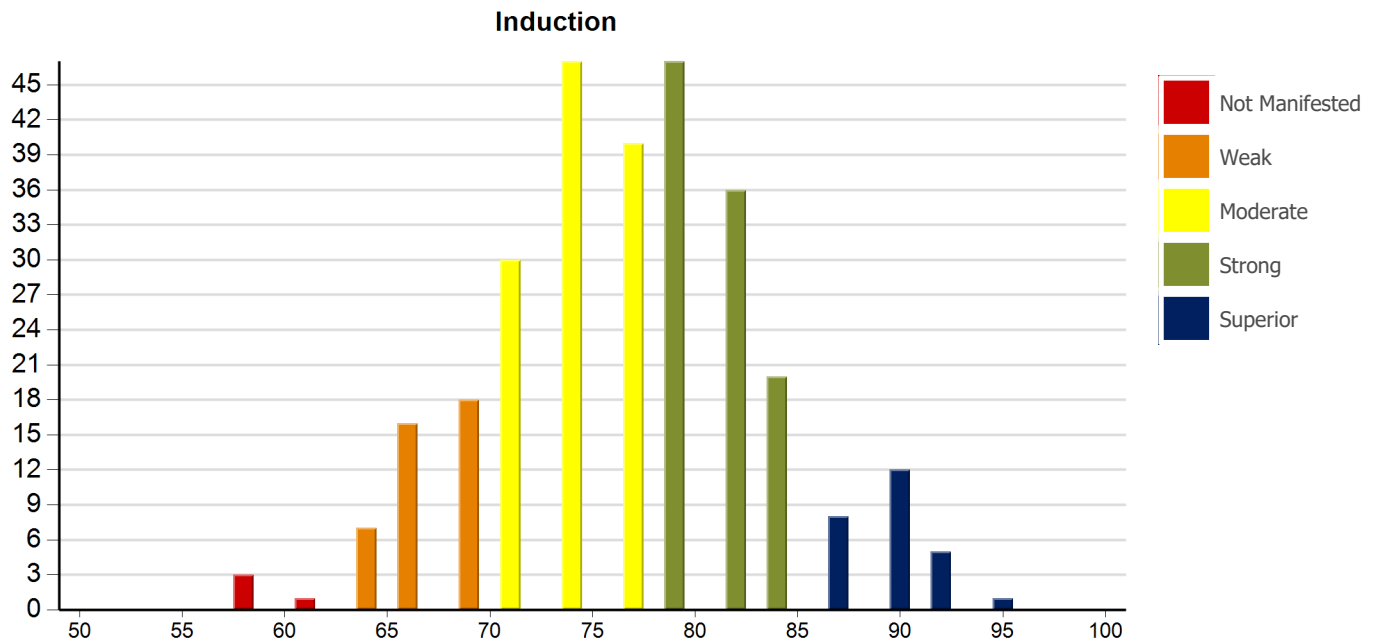
Explanation is the process of justifying what we have decided to do or what we have decided to believe. People with strong explanation skills provide the evidence, methods, and considerations they actually relied on when making their judgment. Explanations can include our assumptions, reasons, values, and beliefs. Strong explanations enable others to understand and to evaluate our decisions.



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**Descriptive Information: Induction**

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
291	76.8	77.0	6.8	0.4	58	95	71.0	82.0



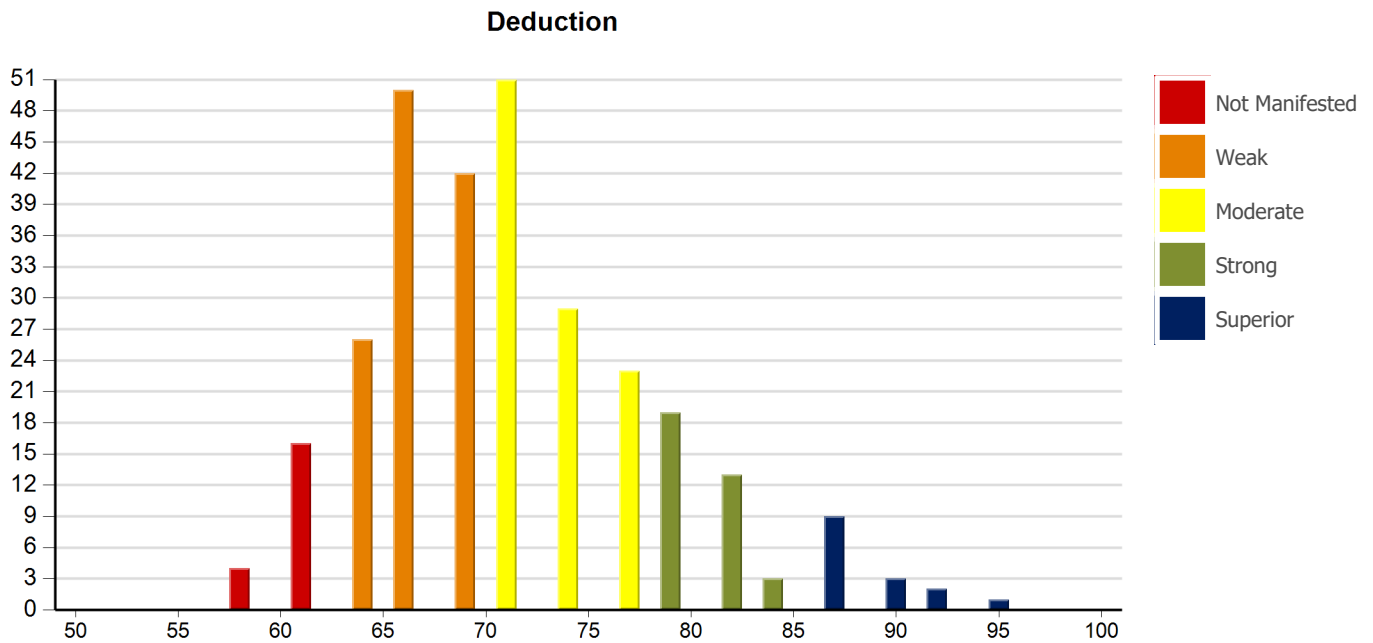
Inductive reasoning relies on estimating likely outcomes. Decision making in contexts of uncertainty relies on inductive reasoning. Inductive decisions can be based on analogies, case studies, prior experience, statistical analyses, simulations, hypotheticals, trusted testimony, and the patterns we may recognize in a set of events, experiences, symptoms or behaviors. Inductive reasoning always leaves open the possibility, however remote, that a highly probable conclusion might be mistaken. Although it does not yield certainty, inductive reasoning can provide a solid basis for confidence in our conclusions and a reasonable basis for action.



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**Descriptive Information: Deduction**

N	Mean	Median	Standard Deviation	SE Mean	Minimum	Maximum	Quartile 1	Quartile 3
291	71.3	71.0	7.0	0.4	58	95	66.0	77.0



Deductive reasoning is rigorously logical and clear cut. Deductive skills are used whenever we determine the precise logical consequences of a given set of rules, conditions, beliefs, values, policies, principles, procedures, or terminology. Deductive reasoning is deciding what to believe or what to do in precisely defined contexts that rely on strict rules and logic. Deductive validity results in a conclusion which absolutely cannot be false, if the assumptions or premises from which we started all are true. Deductive validity leaves no room for uncertainty. That is, unless we decide to change the very meanings of our words or the grammar of our language.