

University of Windsor Scholarship at UWindsor

OSSA Conference Archive

OSSA 10

May 22nd, 9:00 AM - May 25th, 5:00 PM

Measuring critical thinking about deeply held beliefs

Ilan Goldberg

University of Waikato, Philosophy Program

Justine Kingsbury

University of Waikato, Philosophy Program

Tracy Howell

University of Waikato, Philosophy Program

Follow this and additional works at: <http://scholar.uwindsor.ca/ossaarchive>

 Part of the [Philosophy Commons](#)

Goldberg, Ilan; Kingsbury, Justine; and Howell, Tracy, "Measuring critical thinking about deeply held beliefs" (2013). *OSSA Conference Archive*. 58.

<http://scholar.uwindsor.ca/ossaarchive/OSSA10/papersandcommentaries/58>

This Paper is brought to you for free and open access by the Faculty of Arts, Humanities and Social Sciences at Scholarship at UWindsor. It has been accepted for inclusion in OSSA Conference Archive by an authorized conference organizer of Scholarship at UWindsor. For more information, please contact scholarship@uwindsor.ca.

Measuring critical thinking about deeply held beliefs

ILAN GOLDBERG

*Philosophy Program
University of Waikato
Hamilton
Private Bag 3105
New Zealand
goldberg@waikato.ac.nz*

JUSTINE KINGSBURY

*Philosophy Program
University of Waikato
Hamilton
Private Bag 3105
New Zealand
justinek@waikato.ac.nz*

TRACY BOWELL

*Philosophy Program
University of Waikato
Hamilton
Private Bag 3105
New Zealand
taboo@waikato.ac.nz*

ABSTRACT: The California Critical Thinking Dispositions Inventory (CCTDI) is a commonly used tool for measuring critical thinking dispositions. However, research on the efficacy of the CCTDI in predicting good thinking about students' own deeply held beliefs is scant. In this paper we report on preliminary results from our ongoing study designed to gauge the usefulness of the CCTDI in this context.

KEYWORDS: critical thinking, critical thinking dispositions, critical thinking tests, deeply held beliefs, strong sense critical thinking, transfer

1. INTRODUCTION

The main goal of general critical thinking instruction is the promotion of 'transfer': improvement in quality of reasoning on topics not dealt with directly in the critical thinking class, and in situations other than the critical thinking classroom. One target area for transfer that is commonly discussed in the literature is students' thinking about their own deeply held beliefs. Promoting transfer in this area is recognized as particularly difficult both because of the special relationship between

the thinker and the object of thought, and because selective application of critical thinking skills can improve students' ability to defend their beliefs from criticism as well as attack incongruent beliefs (Paul, 1992, p. 136; 1993, pp. 57-8, 137-8, 206-7, 329-30).

One of the keys to the success of a critical thinking intervention is its ability to impart the *will* to think critically, over and above the *ability* to do so – that is, a general disposition to think critically when critical thinking is called for. Once a student decides to think critically about a topic, additional more specific critical thinking dispositions come into play. The disposition to evaluate one's own and alternative views by the same standards and the disposition to persevere through a prolonged or difficult thinking process, amongst others, determine the quality of students' thinking once it has been switched on. Because of the especially problematic nature of thinking that is focused on students' own deeply held beliefs and the importance of such beliefs in determining how students behave and interact with others in the wider world, the disposition to think about such beliefs critically, and attendant dispositions that support good thinking, are particularly important both to promote and, ipso facto, to measure.

One of the tools that is most commonly used to measure critical thinking dispositions in research is the California Critical Thinking Dispositions Inventory (CCTDI). However, research on the efficacy of the CCTDI in predicting good thinking about students' own deeply held beliefs is scant. The main aim of the current study is to gauge the usefulness of the CCTDI in measuring the quality of students' thinking about their own deeply held beliefs. This is done through comparison of CCTDI results with results from two other measures, the Revised Paranormal Belief Scale (RPBS) and a semi-structured interview. The outcome is important for a further study we hope to undertake that will compare alternative methods of delivery of the general critical thinking course to see which is most successful in promoting the transfer of critical thinking skills to the students' thinking about their own deeply held beliefs. This future study will require us to measure the quality of students' thinking about these beliefs; hence our interest in determining what is a good way to measure it. Should it turn out that in fact the Revised Paranormal Belief Scale performs better (as judged against interviews with participants scored for strong sense critical thinking by experienced critical thinking teachers) than the CCTDI, that will be a useful result for us, since the RPBS is free, quick to administer, and can be easily modified, unlike the CCTDI.

For the purposes of this research, deeply held controversial beliefs will be understood as ethical, epistemological, or ontological beliefs that are important to the participant and that are controversial in the sense that many educated and intelligent people disagree with regard to their truth. Claims like "Jesus is divine," "People who vote for Labour don't know anything about politics," and "Eating meat is moral" would be examples provided they were sufficiently important to the participant. The participant need not be aware of holding such beliefs so long as it can be shown that she behaves as if she does. Strong sense critical thinking will be understood as critical thinking that is applied to one's own beliefs as well as it is applied to those of one's "opponents": it is critical thinking that is not biased in favor of one's own beliefs (Paul, 1993, pp. 137-8).

One of our hypotheses is that lack of strong sense critical thinking is indicated by the presence of any one strongly or deeply held belief which is pseudoscientific or anti-scientific, or which lacks good scientific backing even though it is a belief that could reasonably be expected to have such backing if it were true. The RPBS is a rough and ready survey of seven popular kinds of beliefs of this sort. We hypothesised that there would be a correlation between *highest* score on the RPBS (indicating a high degree of belief in some statement of this sort) and *low* scores for strong sense critical thinking (as measured by scored interviews). A second hypothesis was that CCTDI results would *not* correlate so well with strong sense critical thinking, because the CCTDI appears to measure test-takers' *opinions* about their own critical thinking dispositions rather than the dispositions themselves, and there is reason to think that judgments about one's own virtues and abilities tend to be more positive than is justified.

2. METHOD

All participants completed an introductory level one-semester course in critical thinking between 2010 and 2012 at the University of Waikato, New Zealand. In all, fifty seven people chose to participate. Participants were given two movie vouchers as compensation for their efforts. Data from all participants was of sufficient quality to be included in the analysis. At this initial stage no demographic data was collected.

Data was collected using two paper and pencil questionnaires and a semi-structured interview. The first questionnaire given was the Revised Paranormal Belief Scale (RPBS, Tobacyk, 2004). This is a standardized measure of degree of belief in each of seven kinds of "paranormal" beliefs: Traditional Religious Belief, Psi, Witchcraft, Superstition, Spiritualism, Extraordinary Life Forms, and Precognition. It is comprised of 26 statements (e.g. statement 7: Astrology is a way to accurately predict the future). Participants indicate the strength of their agreement/disagreement with each statement on a seven-level Likert-like rating scale (1 = strongly disagree, 7 = strongly agree). Scores for each kind of belief are calculated by averaging the scores for three to four related statements. Mean RPBS and High RPBS were also calculated, the latter being the highest degree of belief in any one of the seven categories scored by each participant.

After completing the RPBS participants were given thirty minutes to complete the California Critical Thinking Dispositions Inventory (CCTDI). This is an internationally recognized standardized critical thinking dispositions test. It is comprised of 75 statements. Test-takers indicate the strength of their agreement/disagreement on a six-level Likert-like rating scale. The questionnaires were machine scored by Insight Assessment who own and distribute the CCTDI. Insight Assessment reported back to the researchers. Every participant was given a score for each of the following characteristics: truth-seeking, open-mindedness, inquisitiveness, analyticity, systematicity, confidence in reasoning, and maturity of judgment. They were also given a total score said to measure a general disposition towards critical thinking. Low CCTDI was also calculated by the researchers. Low CCTDI gives each participant's lowest CCTDI score. CCTDI scores of forty to fifty are

considered to be positive, and scores of fifty to sixty are considered to be high (Facione and Facione, 2010, p. 20).

After taking the CCTDI participants were interviewed by one of the researchers. The interview normally took twenty to thirty minutes and was divided into three parts, each geared towards answering a different question (interview questions one to three). First, participants were asked if the critical thinking course had any influence on the quality of their thinking. Second, participants were asked if the critical thinking course had any influence on the quality of their thinking about their own deeply held but controversial beliefs. The meaning of “deeply held controversial beliefs” was explained to participants briefly in a way that is consistent with but is not necessarily as detailed as the definition given above (see introduction). Both these questions were later scored by each of the researchers scoring independently on a seven-level Likert-like rating scale (1 = very negative, 7 = very positive). If a participants’ answer was not sufficiently clear he or she was explicitly asked to rate changes on this scale.

In the third part of the interview participants were asked to discuss one, two, or three claims that are likely to be controversial beliefs of importance to the participant. The aim was to discuss two claims, but sometimes one provided sufficient telling responses, and at other times two claims still failed to elicit enough responses; hence the variability in the number of claims. The first claim is typically chosen from a belief rated seven in the RPBS, and the second one was typically “it is morally okay to eat meat.” Participants were first asked to give the reasoning behind their beliefs. They were then confronted with counterarguments given by the interviewer, and asked to volunteer their thoughts again. The process was normally repeated twice, or three or more times if only one claim was discussed. To help elicit the needed data participants were also asked questions like these:

- What are your thoughts about X?
- Why do you think that X is true/false?
- Suppose you met someone who had different beliefs about X, because they think that Y or Z. How do you think you might respond to them about this issue?
- Has this discussion changed your view about X?
- In the light of this discussion, do you think that in the days and weeks following the interview you will think about X further, and perhaps try to find out more information about the topic?

Using recordings of the interviews and a rating guide, the behavior of each participant was rated on a seven-level Likert-like rating scale for its conformity with the following claim: The participant displays strong sense critical thinking about his/her own deeply held controversial beliefs (1 = strongly disagree, 7 = strongly

agree). The guide included definitions of strong sense critical thinking, non-critical thinking, and weak sense critical thinking, as well as lists of typical behaviors indicative of these (see appendix). (Data from one rater is at the moment of writing incomplete, and so is not included in the analysis below.)

3. RESULTS

Scoring of question one and two of the interview by the two raters for whom all the data is available (JK and IG) displayed sufficient inter-rater reliability (question one $r(57) = .826, p = .001$, question two $r(57) = .815, p = .001$). The scoring of question three showed considerable correlation ($r(57) = .608, p = .001$) but not sufficiently high for inter-rater reliability, assuming $r = .8$ as threshold (see table 1).

Three RPBS items were found to have correlations with SSCT (question three, interview). Traditional Religious Belief correlated negatively with SSCT for one rater and the mean of both raters (scored by IG, $r(57) = -.339, p = .010$, mean of IG & JK scores, $r(57) = -.320, p = .015$). Mean RPBS correlated negatively with SSCT for the mean of IG & JK scores ($r(57) = -.269, p = .043$). High RPBS correlated negatively with SSCT for both raters and the mean of IG & JK scores (scored by IG, $r(57) = -.297, p = .025$, scored by JK, $r(57) = -.298, p = .024$, mean of IG & JK scores, $r(57) = -.330, p = .012$, see table 2).

Several correlations were found between the CCTDI and SSCT (question three, interview). Truth-seeking correlated positively with SSCT for JK and the mean of IG & JK scores (scored by JK, $r(57) = .360, p = .006$, mean of IG & JK scores, $r(57) = .279, p = .035$). Open-mindedness correlated positively with SSCT for both raters and the mean of IG & JK scores (scored by IG, $r(57) = .294, p = .026$, scored by JK, $r(57) = .288, p = .030$, mean of IG & JK scores, $r(57) = .323, p = .014$). Inquisitiveness correlated positively with SSCT for one rater and the mean of IG & JK scores (scored by JK, $r(57) = .501, p = .001$, mean of IG & JK scores, $r(57) = .445, p = .001$). Analyticity correlated positively with SSCT for one rater (scored by JK, $r(57) = .284, p = .032$). Confidence in reasoning correlated positively with SSCT for one rater (scored by JK, $r(57) = .265, p = .046$). Total CCTDI correlated positively with SSCT for one rater and the mean of IG & JK scores (scored by JK, $r(57) = .446, p = .001$, mean of IG & JK scores, $r(57) = .362, p = .006$). Low CCTDI correlated positively with SSCT for one rater (scored by JK, $r(57) = .328, p = .013$, see table 3).

Numerous positive correlations were also found between the interview items, indicating that a higher rating of the positive influence of the CT course on one's thinking in general as well as one's thinking on one's own deeply held but controversial beliefs predicted higher SSCT scores (see tables 4 and 5).

CCTDI means are either in the positive range, or in the case of truth-seeking and systematicity, very close to it. In comparison, the mean for High RPBS (a participant's most strongly held RPBS category) favours paranormal belief, and the means for SSCT are quite low, indicating widespread deficiency in strong sense critical thinking (see table 6).

Means for question one of the interview (improvement in thinking attributed by the participant to the critical thinking course) show perception of medium to small improvement. Means for question two of the interview (improvement in

thinking about one's own deeply held but controversial beliefs attributed by the participant to the critical thinking course) all show perception of small to no improvement (see table 7).

4. DISCUSSION

At this stage of the research data from only two interview raters is available. Scores for these raters for all three interview questions show strong positive correlations. Crucially, however, the correlation coefficient for question three was lower than 0.8. It was hoped that question three of the interview would be the most accurate measure of participants' strong sense critical thinking, acting as a standard with which to evaluate the suitability of the CCTDI and the RPBS for future research. In some cases the scores of the two raters diverge considerably (e.g. one rater scores the participant's behavior as 5, or mostly strong sense critical thinking, while the other rater scores a 1, or no strong sense critical thinking). Without speculating on the effect of the data from the third rater on this correlation, these divergent cases call for qualitative analysis. We hope that such analysis will help us locate the causes of our disagreements and suggest changes to our method.

Still, in most cases scores for SSCT were more or less in line with each other, suggesting to us that we are, at the very least, on the right track. Also, until qualitative analysis is carried out, it is possible that the divergences are due to one rater not following the rating criteria sufficiently well. Because of both of these reasons, and because of the preliminary nature of this research, we believe that there is still some insight to be gained from comparing results from question three of the interview with results from the RPBS and the CCTDI.

Of the three correlations between RPBS and SSCT (question three, interview), only High RPBS correlated negatively with SSCT scores from both raters. One of our hypotheses was that any one strongly or deeply held non-scientific, pseudoscientific, or anti-scientific belief indicates lack of strong sense critical thinking. The RPBS is a rough and ready survey of seven popular kinds of beliefs of this sort. High RPBS gives the highest score for each participant, that is, a participant's highest level of belief in any of the seven RPBS items. The modest negative correlations found support our hypothesis somewhat.

Of the CCTDI items that correlated with SSCT (question three, interview) most were due to the scoring of a single rater (JK). Only Open-mindedness correlated positively for both raters. The number of correlations does suggest that the CCTDI has some predictive power with respect to strong sense critical thinking, but in absolute terms High RPBS came much closer to the raters' judgments than any CCTDI item. Mean CCTDI scores are by and large positive, while results for SSCT are quite poor with many participants displaying very little if any strong sense critical thinking behaviors. High RPBS results lie somewhere in between. A look at the five top RPBS and CCTDI scorers shows that good results in these instruments does not predict a good result in SSCT (see tables 8 and 9). Curiously, the numerous positive correlations found between interview items mean that simply asking participants if they think the critical thinking course had a good influence on their

thinking in general, or their thinking about their own deeply held but controversial beliefs in particular, could have as much predictive power for SSCT as the CCTDI.

Since the researchers also teach the critical thinking course, we are pleased with the results of question one of the interview. Whether the students are right in thinking that the course has improved their critical thinking skills is a further question. Nevertheless, a mean of medium to small improvement in thinking attributed by the participants to the course is definitely not bad. Results for question two of the interview – a mean of small to no improvement in thinking about one’s own deeply held but controversial beliefs attributed by the participant to the course – are more in line with results for SSCT. Most of the participants flatly denied changing any of their beliefs following the course or applying their newly learned skills to their own deeply held beliefs. Several participants who claimed the course improved their thinking also made it clear that the improvement was mainly one of putting their own arguments more forcefully, of supporting their own previously held beliefs with stronger grounds, and of finding out the weaknesses of others’ arguments more easily (we hope to report on exact numbers for these once qualitative analysis of the interviews is complete). This is in line with our hypothesis that the critical thinking course can improve students’ dexterity with certain critical thinking skills while at the same time increasing the probability that they will use their newly acquired skills one-sidedly, to defend their own previously held beliefs and attack the beliefs of others.

Once data collection and analysis is complete we aim to report on T-tests between students who took the course in 2010 or 2011, and students who took the course in 2012; correlations between the CCTDI and the RPBS; regression analysis and correlations internal to the CCTDI and RPBS; possible changes to the RPBS to make it more suitable to our very specific needs; inter-rater reliability and correlations with the data from the third interview rater; and likely causes of conspicuous divergent results, including divergent SSCT scores.

With regard to the latter, we are already considering some hypotheses, feedback on which would be most welcome. (1) Is the scoring guide (see appendix) sufficiently clear or comprehensive? Some of the “behaviors” listed in the guide are not obvious behaviors, and some are not behaviors at all. Nevertheless, they seemed to us to embody important differences between strong sense critical thinking and its counterfeits, differences that we had to rely on to some extent in our scoring. It was hoped that educated guesses based on cues available in more overt behavior would suffice for consistent scoring. (2) What effect did the worldviews of the different raters have? Can the discrepancies be traced back to different views on the morality of eating meat (the most commonly discussed issue in the third part of the interviews)? We commonly see students’ judgments about the quality of particular instances of reasoning, or the character of other students, being inappropriately influenced by prior beliefs. Being teachers of critical thinking does not put us above suspicion. (3) Is it our understanding and/or use of the concept of deeply held belief that is at fault? One rater (JK) was initially concerned that not all of the topics discussed in the interviews were in fact deeply held beliefs of the participants in question: this was particularly of concern in cases where the participants didn't check 6 or 7 (where 7 is "strongly agree") for any of the items in the RPBS, didn't

volunteer any deeply held beliefs when asked to, and responded without much enthusiasm to the interviewer's question (having already ascertained that the participant was a meat-eater) "Do you strongly feel that it is your *right* to eat meat?" or "Do you strongly feel that meat-eating is morally okay?" If the claims discussed in the interview were not deeply held beliefs of the participant, then it would not be possible to rate the participant's strong sense critical thinking about their deeply held beliefs on the basis of the interview. However, we think that this was not in fact a source of difference between raters. In the initial (and currently only) round of scoring, JK scored the participants for SSCT on the assumption that the beliefs in question were in fact deeply held beliefs, registering her doubts about this assumption in some cases for later investigation. The view that deeply held beliefs are better revealed by people's practices (e.g. regularly eating meat) than by what they say seems defensible, though it is not uncontroversial. We hope to discuss this issue further in later work.

A second issue concerning the notion of deeply held belief is worth mentioning here, though it does not explain rating differences in the present data. The third rater, whose results are not included in the current data set, suggests that *religious* beliefs may not be suitable examples of deeply held belief in this context; since many of the interviews did discuss religious matters, although none of them discussed *only* religious matters, this may, when the data is in, cause there to be a difference between TB's ratings for SSCT and those of IG and JK. The thought is that religious and spiritual matters may not be the kinds of things about which people *can* reason with any real effectiveness. They might be considered not to be beliefs at all, but rather ways of being. (It is an interesting question whether or not this view is opposed to the suggestion in the previous paragraph that one can read people's beliefs off their behavior even if they do not admit to having those beliefs when questioned). Or they might be considered to be beliefs which by their very nature are held as a matter of faith, rather than reason. Some of the participants were quite explicit about the fact that they were not open to revising their religious beliefs in response to argument because they didn't think any arguments could be relevant; their belief was a matter of faith. In contrast, no participants talked like this about their beliefs in astrology or in psychic powers. Again, we hope to discuss these issues further in subsequent work.

ACKNOWLEDGEMENTS: Thanks to Nicola Starkey for her help with interpreting the data and to the Faculty of Arts and Social Sciences at the University of Waikato for funding this research.

REFERENCES

- Facione, N. C., & Facione, P. A. (2010). *The California Critical Thinking Disposition Inventory CCTDI Instrument User's Manual*. Millbrae CA: The California Academic Press.
- Paul, R. W. (1992). Teaching Critical Reasoning in the Strong Sense: Getting Behind Worldviews. In R. A. Talaska (Ed.), *Critical Reasoning in Contemporary Culture* (pp. 135-156). Albany: State University of New York Press.

- Paul, R. W. (1993). *Critical Thinking: What Every Person Needs to Survive in a Rapidly Changing World*. (3rd ed.) Santa Rosa, CA: Foundation for Critical Thinking.
- Tobacyk, J. J. (2004). A Revised Paranormal Belief Scale. *The International Journal of Transpersonal Studies*, 23, 94-98.

APPENDIX: EXCERPTS FROM THE INTERVIEW SCORING GUIDE

Strong sense critical thinking is displayed in behaviors like these:

1. Seriously considering opposing arguments when confronted with them.
2. Recognising and internalizing the import of opposing arguments when confronted with them.
3. Showing genuine interest in opposing arguments or evidence.
4. Questioning the perspectives, beliefs, and inferences one is personally invested in.
5. Sympathetically and accurately paraphrasing opposing arguments in a genuine attempt to recognize their strengths and significance.
6. Reasoning from within opposing perspectives in a genuine attempt to recognize their strengths and significance, as well as the limitations of one's own perspective.
7. Showing a genuine interest in basing one's beliefs on the best available evidence.
8. Showing a genuine interest in seeking opposing evidence.

Weak sense critical thinking and non-critical thinking are the opposite of strong sense critical thinking and are displayed in behaviors such as these:

1. Paying lip-service to the import of opposing arguments when confronted with them as a rhetorical device, or a prelude to counter-attack.
2. Lack of interest in opposing arguments or evidence. Lack of inclination to investigate opposing arguments or evidence further. Passing the burden of proof to one's opponents. Thinking that it is reasonable to keep one's deeply held controversial belief until one's opponents supply incontrovertible evidence or proof.
3. Questioning only perspectives, beliefs, and inferences one is not personally invested in, or beliefs and inferences that are contrary or contradictory to those one is personally invested in.
4. Application of the skills taught in the critical thinking course to arguments opposing one's views more than to one's own reasoning.
5. Refusal to reason from within opposing perspectives.
6. Criticising opposing evidence unfairly.
7. Judging the quality of the evidence based on its agreement with one's beliefs.
8. Repeatedly and only defending one's own beliefs and attacking the opposition.
9. An admission that no arguments will ever be good enough to elicit change of belief.
10. Shielding one's beliefs from criticism by claiming that everyone has a right to their own beliefs.

Although we don't test for argument analysis and fallacy identification skills in this research, poor – and only poor – argument analysis and fallacy identification skills are relevant to scoring the third scale of the interview. The reason for this is our use of Richard Paul's three-way distinction between strong sense critical thinking, weak sense critical thinking, and unskilled or non-critical thinking. Low dexterity with or use of argument analysis and fallacy identification skills counts against strong sense critical thinking because strong sense critical thinking is skilled thinking. But high dexterity with or correct and common use of argument analysis and fallacy identification skills does not count in favour of strong sense critical thinking because weak sense critical thinking can be just as skilled as strong sense critical thinking. It's just that in weak sense critical thinking, skills are applied apologetically rather than fairmindedly.

TABLES

Table 1
Interview Inter-rater Reliability JK and IG

		Q1IG	Q2IG	Q3IG
Q1JK	Pearson Correlation	.826	.295	.317
	Sig. (2-tailed)	.001	.026	.016
Q2JK	Pearson Correlation	.354	.815	.101
	Sig. (2-tailed)	.007	.001	.455
Q3JK	Pearson Correlation	.355	.362	.608
	Sig. (2-tailed)	.007	.006	.001

Table 2
Correlations between RPBS and SSCT (Interview Question Three)

			Q3Mean	Q3JK	Q3IG
Traditional Belief	Pearson Correlation		-.320	-.255	-.339
	Sig. (2-tailed)		.015	.056	.010
Psi	Pearson Correlation		-.217	-.163	-.244
	Sig. (2-tailed)		.105	.227	.067
Witchcraft	Pearson Correlation		-.212	-.158	-.241
	Sig. (2-tailed)		.113	.241	.071
Superstition	Pearson Correlation		-.200	-.204	-.145
	Sig. (2-tailed)		.135	.127	.283
Spiritualism	Pearson Correlation		-.126	-.112	-.115
	Sig. (2-tailed)		.351	.405	.396
Extraordinary Life Forms	Pearson Correlation		-.041	-.095	.050
	Sig. (2-tailed)		.761	.480	.713
Precognition	Pearson Correlation		-.219	-.229	-.151
	Sig. (2-tailed)		.101	.087	.262
Mean RPBS	Pearson Correlation		-.269	-.235	-.253
	Sig. (2-tailed)		.043	.078	.057
High RPBS	Pearson Correlation		-.330	-.298	-.297
	Sig. (2-tailed)		.012	.024	.025

Table 3
Correlations between CCTDI and SSCT (Interview Question Three)

		Q3Mean	Q3JK	Q3IG
Truth-seeking	Pearson Correlation	.279	.360	.091
	Sig. (2-tailed)	.035	.006	.500
Open-mindedness	Pearson Correlation	.323	.288	.294
	Sig. (2-tailed)	.014	.030	.026
Inquisitiveness	Pearson Correlation	.445	.501	.252
	Sig. (2-tailed)	.001	.001	.059
Analyticity	Pearson Correlation	.242	.284	.120
	Sig. (2-tailed)	.070	.032	.376
Systematicity	Pearson Correlation	-.001	.058	-.088
	Sig. (2-tailed)	.997	.669	.517
Confidence in Reasoning	Pearson Correlation	.155	.265	-.047
	Sig. (2-tailed)	.249	.046	.726
Maturity of Judgment	Pearson Correlation	.150	.188	.056
	Sig. (2-tailed)	.266	.162	.678
Total CCTDI	Pearson Correlation	.362	.446	.147
	Sig. (2-tailed)	.006	.001	.274
Lowest CCTDI	Pearson Correlation	.237	.328	.043
	Sig. (2-tailed)	.076	.013	.749

Table 4
Correlations within Interview Items A

		Q1JK	Q2JK	Q3JK	Q1IG	Q2IG	Q3IG
Q1JK	Pearson Correlation	1	.220	.264	.826	.295	.317
	Sig. (2-tailed)		.100	.047	.001	.026	.016
Q2JK	Pearson Correlation	.220	1	.300	.354	.815	.101
	Sig. (2-tailed)	.100		.023	.007	.001	.455
Q3JK	Pearson Correlation	.264	.300	1	.355	.362	.608
	Sig. (2-tailed)	.047	.023		.007	.006	.001
Q1IG	Pearson Correlation	.826	.354	.355	1	.516	.384
	Sig. (2-tailed)	.001	.007	.007		.001	.003
Q2IG	Pearson Correlation	.295	.815	.362	.516	1	.153
	Sig. (2-tailed)	.026	.001	.006	.001		.256
Q3IG	Pearson Correlation	.317	.101	.608	.384	.153	1
	Sig. (2-tailed)	.016	.455	.001	.003	.256	
Q1Mean	Pearson Correlation	.949	.305	.327	.962	.432	.369
	Sig. (2-tailed)	.001	.021	.013	.001	.001	.005
Q2Mean	Pearson Correlation	.271	.951	.348	.458	.954	.134
	Sig. (2-tailed)	.042	.001	.008	.001	.001	.321
Q3Mean	Pearson Correlation	.316	.244	.935	.407	.308	.850
	Sig. (2-tailed)	.016	.067	.001	.002	.020	.001

Table 5
Correlations within Interview Items B

		Q1Mean	Q2Mean	Q3Mean
Q1JK	Pearson Correlation	.949	.271	.316
	Sig. (2-tailed)	.001	.042	.016
Q2JK	Pearson Correlation	.305	.951	.244
	Sig. (2-tailed)	.021	.001	.067
Q3JK	Pearson Correlation	.327	.348	.935
	Sig. (2-tailed)	.013	.008	.001
Q1IG	Pearson Correlation	.962	.458	.407
	Sig. (2-tailed)	.001	.001	.002
Q2IG	Pearson Correlation	.432	.954	.308
	Sig. (2-tailed)	.001	.001	.020
Q3IG	Pearson Correlation	.369	.134	.850
	Sig. (2-tailed)	.005	.321	.001
Q1Mean	Pearson Correlation	1	.388	.382
	Sig. (2-tailed)		.003	.003
Q2Mean	Pearson Correlation	.388	1	.291
	Sig. (2-tailed)	.003		.028
Q3Mean	Pearson Correlation	.382	.291	1
	Sig. (2-tailed)	.003	.028	

Table 6
High RPBS, CCTDI, and Interview Means

	Mean	Std. Deviation
High RPBS	4.65	1.93
Truth-seeking	38.00	5.57
Open-mindedness	43.82	5.74
Inquisitiveness	49.05	5.49
Analyticity	45.49	5.32
Systematicity	39.84	5.87
Confidence in Reasoning	44.75	6.06
Maturity of Judgment	45.70	6.05
Q3JK	2.44	1.31
Q3IG	1.63	.87
Q3Mean	2.03	.98

Table 7
Means for Interview Questions One and Two

	Mean	Std. Deviation
Q1JK	5.81	.76
Q2JK	4.79	.92
Q1IG	5.84	.88
Q2IG	4.91	.95
Q1Mean	5.82	.78
Q2Mean	4.85	.89

Table 8
Best Five Mean CCTDI with SSCT (Interview Question Three) Scores

ID	Mean CCTDI	Q3JK	Q3IG	Q3Mean
47	51.14	4	2	3
33	50.57	4	3	3.5
40	49.85	5	1	3
1	49.42	2	1	1.5
38	48.57	5	2	3.5

Table 9
Best Five High RPBS with SSCT (Interview Question Three) Scores

ID	High RPBS	Q3JK	Q3IG	Q3Mean
8	1	2	2	2
27	1	5	2	3.5
41	1	2	1	1.5
47	1.25	4	2	3
15	1.75	2	1	1.5