THE TELEMACHUS PROJECT QUALITATIVE, NARRATIVE ASSESSMENT OF THE UNIVERSITY OF DALLAS CORE CURRICULUM

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Higher education must cultivate imagination in order to show students the way to reason's highest purposes. Louise Cowan, by her words and her example, made clear that the UD curricula present some of the finest works of Western and world imagination in a disciplined way, not just to train students for professional life but to expand their capacities, their minds, their hearts, their souls, so that they might be capable of recognizing, perhaps even embracing, what is essential to a good and civilized human being.

Dennis Sepper, Ph.D. Professor of Philosophy University of Dallas 2012 King Fellow Address 17 January 2012

INSTITUTIONAL CHOICES

BRIEF HISTORY:

The University of Dallas is nationally known for its Core Curriculum, authored by legendary professor of literature and National Humanities Medal winner Louise S. Cowan, who, along with her late husband, Donald Cowan, took joint positions at UD in its formative first decade.

Within a few years Cowan had revamped the standardized curricular program, expanding what was considered an "honors program" to make it the required curriculum for all undergraduate students. A modification of the St. John's style Great Books approach, its salient characteristic was that students spent roughly the first two years of study reading the foundational texts of western civilization in their entirety, and the second two years focusing on a discipline. The sequence of readings in literature, now known as the Literary Tradition Sequence, was organized, not chronologically, but according to Cowan's articulation of genre theory: The Epic, Tragedy and Comedy, and the Lyric. The truly innovative dimension of the curriculum she devised was that it posited imagination as the foregrounding of all learning, and therefore, of the attainment of wisdom. Imagination serves as the central axis around which first the liberal arts, then the other disciplines, organize themselves. Poetry, therefore, understood in its broadest sense as imaginative language, is understood as the fundamental articulation of the

first fruits of imagination in Western culture. She understood that deep grounding in the foundational core texts of the Western intellectual tradition provides matchless preparation for disciplinary study in advanced undergraduate work, through which students develop their passion and their gifts and discover their vocations.

As Cowan herself has attested, the precise form of this curriculum remained somewhat fluid, adapting to the needs of the growing university and input from all disciplines. In the 1980's UD received funding from the National Endowment for the Humanities to perform a rigorous self-study of its curriculum. One of the results of this study, completed in 1986, was a certain calcification of the core curriculum. Stresses arose in the subsequent decades between those who wished to maintain the core in what had become its standardized form to assure its rigor and depth and those, especially science faculty, who, as demands on science graduates increased, struggled to meet those pre-professional demands while remaining committed to the principles of core text-based liberal arts education.

INSTITUTIONAL CHOICES:

In 2005-6 UD undertook a review of the core curriculum in light of these demands, and certain adjustments were made to the requirements. "Large Majors," mainly the B.S. degree programs, saw a reduction of required credits in History and Literature from 12 to 9. The Math/Fine Arts requirement was reduced for all students from 9 credits to 6, 3 in each discipline. The 12 credit philosophy requirement that included an advanced philosophy course related to the major area (Aesthetics for Art, Philosophy of Science for Science majors, etc.) was reduced to 9 credits, although several majors added the advanced philosophy to the major requirement. The changes to the core requirements were implemented in the 2007-2008 academic year. The plan called for a review of the changes after 3 years.

Meanwhile, in 2009, UD submitted its mid-term report to the Southern Association of Colleges and Schools Committee on Colleges and received its review, which called for additional documentation of program assessment. In 2010, reviewing the early results of rigorous self-study and voluntary modifications to the sequence and content of the core curriculum, the undergraduate faculty, as represented by the Council of Deans and Chairs, approved UD's participation in the joint AGLS-ACTC Qualitative Narrative Assessment Project, agreeing that it presented a unique opportunity to address learning outcomes subsequent to the revision of the core curriculum, in compliance with the criteria outlined in the re-accreditation findings.

The UD faculty found itself in accord with the faculty of other liberal arts institutions who claim that the quantitative methods currently used to measure outcomes inadequately demonstrate the benefit of such an education to students. While not without value, statistics on graduate school or pre-professional school acceptances, graduation rates, GPAs, or first job placements fall short of articulating the value-added dimension of the deep reading in core texts. So, with the other pilot schools of ACTC, UD committed itself to crafting a form of assessment that would at once demonstrate the positive learning outcome for students in compliance with reaccreditation guidelines, as well as argue persuasively for the value of this type of learning, in response to the growing emphasis on a pragmatic informational curriculum aimed at preparation for the job market.

ACTION STEPS:

As a starting point the following hypothesis was formulated: an undergraduate liberal arts education grounded in and anchored by deep reading in primary core texts augments students' attainment of intellectual maturity. Researching this hypothesis addressed the fundamental question: what have students accomplished when they have completed their undergraduate study at UD that fills the faculty with pleasure and satisfaction, confident that genuine good has been accomplished? How has foundational reading in core texts augmented students' wisdom? In the end, UD has attempted to demonstrate that fruitful education is manifest in who students are and who they become, not solely in what they do, aware, certainly, that such evaluations, fraught as they are with value laden, subjective language, are not fully expressible as quantitative data. As an institution UD has participated in this project for the opportunity it presents to join with other institutions in influencing the national conversation about the telos of education, which might be summed up in a phrase from Ex Corde Ecclesiae: "the priority...of the person over things."

The process of design and implementation began in spring 2010 when the then Associate Dean of the undergraduate liberal arts college, with the approval of the Dean and Provost, agreed to participate in a humanistic assessment project jointly sponsored by the Association of General and Liberal Studies and the Association of Core Texts and Courses, with the understanding that the project designed would address general education learning outcomes as required by SACSCOC. As the procedure for data collection and analysis were implemented, changes in policy and personnel necessitated modifications of the prototype model, producing a stronger and more easily executed procedure while further solidifying the cooperative relationships among the various units that have contributed to the narrative assessment project in general.

The original source of base-line writing samples was a timed essay component of a competitive scholarship exam, which had been administered for many years to a subset of rising high school juniors applying for admission to the university. When the office of undergraduate admissions discontinued the competitive exam in 2013, the Vice-President for Enrollment and Student Life suggested replacing it with the current practice of collecting base-line writing samples during new student orientation. This demonstrates the cooperation among the several offices and academic units that represents system-wide support for the project, thereby maximizing both use of resources and the likelihood of long-term benefit.

Essays from the students that enrolled in the 2009 entering cohort served as baseline writing samples for evaluation in a sample study. These students were then asked to write another essay on the same prompt with the same time limit at the end of year 2, when the largest part of the core curriculum has be completed, and at the end of year 4, at the conclusion of their disciplinary studies.

In spring 2012 Faculty members that regularly teach core courses team-taught a 1-credit, non-graded elective course entitled: "Across the Core." A group of 75 students, mainly seniors, met with different faculty members for 1 classroom hour each week to discuss the value of the core course they teach and the value of the core as a whole. Students were presented an opportunity to reflect on this fundamental dimension of their undergraduate study at the culmination of their disciplinary study and articulate its immediately perceived benefit. These lectures and discussions were videotaped.

Under the supervision of the Chair of the Psychology Department, graduate students used language analysis and other modes to examine the faculty presentations and student discussions, producing a set of those narrative descriptors of the benefits of a core text-based liberal arts

curriculum that recurred most often, resulting in a composite description of the student who demonstrates intellectual maturity at the conclusion of undergraduate study. These narrative descriptors, which collectively articulate the learning goals for the core curriculum, were then arranged into an easy to use rubric with which to evaluate the writing samples.

THE TELEMACHUS PROJECT

The research and assessment project is named for the son of Odysseus, whose story is narrated in Books 1-4 of *The Odyssey*, a core text read by all first year undergraduate students at the University of Dallas. Telemachus must complete his education in order to mature from adolescence to adulthood, to find his place in the world. That he must learn what it means to be his father's son foregrounds the great tale of Odysseus' journey, itself an education for all who hear it. Telemachus' story—the Telemachy—serves as the paradigm for UD's core text centered undergraduate curriculum, which demands that all students reflect deeply on the origins of the culture in which they live in order discover who they are and who they are meant to become, to prepare for meaningful, responsible, virtuous adult lives.

This model continues to shape and distinguish the UD core curriculum and undergraduate programs. The development of the Telemachus project exemplifies the University-wide ongoing commitment to the indispensable centrality of the core curriculum as the best means to achieve the fundamental, primary objective expressed in its mission, the pursuit of wisdom, understood for these purposes as intellectual maturity. This intellectual maturity is precipitated by experience of *metanoia*: a coming to awareness based on observation, study, and empathy that prompts deepening of insight, action that implies more than strictly information acquisition: "a reorientation of one's way of life" (OED).]

The Administration, Offices of Institutional Research, Information Technology, and Undergraduate Admissions, have all contributed "in-kind" resources to the project; this cooperation enhances the sense of ownership, improving morale across administrative categories. Faculty guidance and participation in the formulation of this assessment instrument has been indispensable to its success for two reasons: first, they *narrated and modeled* the specific intangible, yet invaluable, benefits of the university's unique curriculum; second, because of this participation and this articulation of what they perceive the ultimate value to the students should be, and because the instrument has been developed and implemented by the faculty themselves, rather than imposed upon them from external sources, *they value and support* the effort. The self-directed, internal development that incorporates examples of actual student writing as evidence of intellectual maturity, in addition to students' narrative of perceived value of the core curriculum, combined with minimal demands on resources, has yielded additional value.

PROJECT DESCRIPTION:

A representative sample of students write under controlled conditions at three points in their undergraduate careers: before enrolling, at the midpoint (completion of core curriculum), and at the culmination of major disciplinary study (graduation). Writing samples are reviewed for development of desiderata that indicate increasing intellectual maturity, as identified and narrated by faculty that regularly teach courses in the core curriculum and organized into an easy-to-use rubric.

The baseline essay is written in response to one of several prompts in a one hour session during fall semester new student orientation. Renewal of financial aid for continuing students is

predicated upon submission of the second and third writing samples, thereby assuring participation sufficient to produce statistically significant data sets. Mid-point and final essays are administered using an eCollege course shell. Results are tabulated and used to prompt program review and plan appropriate curricular adjustments in addition to the primary purpose of demonstrating the effect of the study of core texts on the intellectual maturity of individual students over time.

INFORMED JUDGEMENTS:

In summer 2013 the Assistant Vice-President/Assistant Provost, formerly the Associate Dean, designed and uploaded a course in Blackboard to collect writing samples for the second and third data points, controlling time and prompt parameters. Evaluators analyzed writing samples using the rubric derived from faculty and student narratives; however, voluntary participation by subjects proved insufficient to produce a statistically relevant sample. Instead, focus groups of advanced students were conducted to gather anecdotal qualitative information while complete cohort cycles are put in place. The pilot formula for the qualitative narrative assessment instrument has been shown to produce useful information. It is now explained as the Telemachus Test in the letters sent to admitted students.

The university discontinued using Blackboard after fall 2014, necessitating the creation of a new course shell in e-College for the evaluation of the writing samples of future student cohorts. The source of future base-line writing samples is reliable, the rubric finalized, yet easily updated when determined appropriate, and easily scored. Meaningful incentives for subject participation in the mid- and end-point writing sample collection is will yield useable information. When continuous cycles of assessment are complete the Telemachus Project will prove a valuable source of information about a student learning outcome crucial to supporting the university's distinctive undergraduate program and mission statement. Further, the opportunity to institute new writing prompts presents an opportunity to establish and reinforce the SACSCOC-mandated, university-wide Quality Enhancement Plan to implement an institution-wide, integrated strategy for assisting students in identifying their vocations and preparing for them, the development of which paralleled the qualitative narrative assessment project. The result will be an articulation of value of this education expressed in a vocabulary that is meaningful to its target constituencies and concomitantly apprehensible to accrediting agencies and the higher education community at large.

FURTHER IMPROVEMENTS:

Assessing intellectual maturity as a primary learning goal, while requiring some innovation, nevertheless addresses the desire for a successful yet succinct way to convey the shared commitment to transformational education addressed to the pursuit of wisdom, in accord with the university's avowed mission. Ongoing use will produce meaningful information about student achievement of this learning goal that will facilitate continuous improvement efforts while embedding dedication to imaginative, synthetic, and critical thinking into institutional goals.

QUALITATIVE, NARRATIVE RESULTS:

The following excerpts comparing introductory, body, and concluding passages from base-line and mid-point essays by the same student, on the same prompt, under the same time parameters, demonstrate the positive development in thought and rhetorical proficiency gained by students who have, for the most part, completed the core curriculum. A broader intellectual context that indicates familiarity with other writers and thinkers on the same subject is apparent throughout the samples, as well.

EXAMPLE 1:

The writer begins the base-line essay with an unsupported claim on the subject. At mid-point the student demonstrates the ability to compare and contrast the claims of three thinkers from different time periods on the same idea, concisely state the claims of those three writers, use correct terminology for the claim, and deduce a conclusion using dialectic logic.

900838591

Base-line:

Thomas Hobbes is wrong in his belief that there is no standard of justice outside of the laws of civil society. We can see in every culture, through the use of conscience and through our actions, that a law greater than the laws of civil society exists, the Moral Law.

Mid-point:

Thomas Hobbes claims that there is no standard of right and wrong, and therefore man is justified in acting however he deems necessary to secure his self-preservation in a state of nature. Thomas Aquinas and C. S. Lewis, however, disagree. Aquinas claims that since we were all created by God, we are all required to follow the Law of Nature, which aims us toward the Good. Lewis says that, as we can see in daily life, there are standards men follow and therefore there must be a Law of Human Nature for us to follow as well. We are responsible for following this law, no matter who or where we are since it is something that exists within all individuals.

EXAMPLE 2:

The writer strings together the names of three important texts, but says nothing else about them. This is followed by an oversimplified, unsubstantiated generalization, and a rhetorical question with an unsubstantiated conclusion. At mid-point the writer has constructed a coherent argument, substantiated a claim by directly quoting from the core text, comparing the claim with the ideas of two other thinkers. The writer indicates that the conclusion from the premises indicates a flaw in logic, then introduces a new possibility, effecting a logical transition to the next paragraph.

Base-line:

Man's need to be justice is expressed both in the Magna Carta and *Plato's Republic*. Therefore, the next question becomes how do people know what is just. The best way to answer this question is by looking at little kids. Children always seem to identify with the heroes of stories and movies. They always know who the good guys are. How do they know what is good? The answer to this question is in the Bible.

Mid-point:

Every man longs for a Utopia, heaven on Earth. Thomas Hobbes clearly believed that a Utopia was only possible through human society. However, because he destroyed the very notion of a transcendent order of justice by saying, "Because there is no standard of justice in the state of nature, no one can be criticized for the choices he makes in defending his rights," he unwittingly destroys the possibility of a good society ever coming to be. By Hobbes' trying to unite the Lockean understanding of the state of nature and Aristotelian understanding of society, Hobbes is misrepresenting and degrading these two great understandings which still fall short of the authentic Christian understanding of justice and human nature.

QUANTITATIVE RESULTS:

Reader 1 Baseline										
	ID#									
	31278	32258	28814	38377	38591	38763	38764	38777	39324	39458
Q 1	6	7	7	8	7	6	4	7	4	7
Q 2	7	2	7	8	7	5	2	7	5	6
Q 3	7	5	6	8	6	7	3	7	5	7
Q 4	6	4	5	5	4	6	3	6	4	5
Q 5	5	6	3	5	4	7	3	5	4	5
Q 6	6	6	8	8	7	7	2	8	6	8
Q 7	5	5	4	5	6	5	2	8	5	7
Q 8	5	5	8	8	6	7	1	8	5	8
Total	47	40	48	55	47	50	20	56	38	53
Reader 2 Baseline										
Q 1	5	6	7	7	8	6	3	7	4	8
Q 2	4	6	8	9	10	5	3	8	6	7
Q 3	4	7	7	7	7	4	3	6	4	7
Q 4	4	6	7	7	7	4	4	7	5	6
Q 5	3	6	5	7	7	5	7	6	6	7
Q 6	4	7	5	5	9	5	3	7	2	5
Q 7	5	6	7	6	7	5	3	6	5	3
Q 8	4	6	6	7	9	5	3	7	4	6
Total	33	50	52	55	64	39	29	54	36	49

Reader 3 Baseline										
Q 1	2		1	1	1	3	1	2	1	2
Q 2	1		2	2	1	1	0	1	2	3
Q 3	1		2	2	1	2	1	1	1	1
Q 4	2		2	2	1	2	2	1	1	3
Q 5	1		1	1	1	1	1	1	1	1
Q 6	1		2	3	1	1	2	2	1	2
Q 7	1		2	1	1	2	2	1	2	2
Q 8	1		1	1	1	1	2	1	1	2
Total	10		13	13	8	13	11	10	10	16
					er 1 Mi	=				
	ID#	ID#	ID#	ID#	ID#	ID#	ID#	ID#	ID#	ID#
	31278	32258	28814	38377	38591	38763	38764	38777	39324	39458
Q 1	6	6	6	5	7	7		7	5	8
Q 2	4	6	3	6	7	6		6	5	6
Q 3	7	6	5	6	7	7		6	6	8
Q 4	4	5	5	3	6 5	6		6	4	6
Q 5 Q 6	6 6	5 6	5 7	4 5	5 7	5 8		4 7	6 6	8 8
Q 7	4	6	, 5	5 5	<i>7</i> 5	6		<i>,</i> 5	5	8 5
Q7 Q8	7	6	5	5	3 7	6		6	5	8
Total	44	46	41	39	, 51	51		47	42	57
				Read	er 2 Mi	dpoint				
Q 1	6	7	8	6	9	7		8	6	8
Q 2	5	6	7	6	8	6		8	5	7
Q 3	5	6	7	3	8	6		8	5	9
Q 4	5	6	7	4	9	6		6	6	7
Q 5	5	6	6	4	7	6		6	6	7
Q 6	5 6	5 4	7 7	3 4	9 8	4		6	4	6
Q7	6	4 4	8	4	9	5 5		6 7	6 6	6 7
Q 8 Total	43	4 44	5 7	4 34	6 7	4 5		, 55	44	, 57
Total	43	7-7	37	34	07	43		33	7-7	37
Reader 3 Midpoint										
Q 1	6	6	6	7	7	7		7	6	7
Q 2	4	5	5	7	7	6		6	4	6
Q 3	5	6	5	7	6	7		5	4	7
Q 4	4	6	4	7	6	5		6	5	7
Q 5	4	4	5	5	5	5		4	4	6
Q 6	4	5	5	7	7	7		6	6	7
Q 7	6	5	5	6	7	5		6	4	6
Q8	4	5 43	5 40	7 53	6 51	6		6	4 27	7 53
Total	37	42	40	53	51	48		46	37	53

QUANTITATIVE SUMMARY:

900831278	47	33	10	30	44	43	37	41
900832258	40	50	0	45	46	44	42	44
900828814	48	52	13	38	41	57	40	46
900838377	55	55	13	41	39	34	53	42
900838591	47	64	8	40	51	67	51	56
900838763	50	39	13	34	51	45	48	48
900838764	20	29	11	20				
900838777	56	54	10	40	47	55	46	49
900839324	38	36	10	28	42	44	37	41
900839458	53	49	16	39	57	57	53	56

AVERAGE 35.5 47

APPENDIX:

SAMPLE RUBRIC SCORE SHEET WITH EXPLANATION

Across the Core Qualitative Assessment

Gilbert Garza, Associate Professor, Chair, Graduate Program Director, Psychology

Project Summary

My graduate Foundations of Qualitative Research (Psy 6333) course undertook at the behest of Dr. Kathleen Burk a qualitative analysis of the lectures comprising the Across the Core course offered at UD during the Spring of 2012. We viewed and analyzed the videos of lectures presented by Dr. Jodziewicz (history), Dr. Frank (philosophy), Dr. Olenick (physics), Dr. Moran (English), Dr. Ceasar (art), Dr. Brownsberger (theology), Mr. Lemieux (drama), Dr. Ivan Eidt (modern language), Dr. Brown Mardsen (biology), Dr. Eaker, (chemistry), and Dr. Sweet (classics). In these videos, professors described their discipline and its relation to the Core and the University mission. We took up these lectures from the vantage point of a 'guiding question' regarding what we could infer from these lectures regarding faculty perceptions of the value and goals of the core. To this end we subjected the data to qualitative analysis and discerned several themes common to the lectures regarding what it would mean to students to 'get' the UD core. The goal of this analysis was to facilitate the development of a rubric by which student writing could be assessed prior to entering the University and at year three or four to assess the impact of exposure to the UD core.

General Themes of 'Getting' the Core

Our analysis revealed several recurring and common themes among the lectures which we took to be indicative of what faculty imagined would be the outcome of the University's liberal education. They included:

- A recognition of and appreciation of complexity
- The ability to draw on multiple disciplines and perspectives to address complex realities
- An abiding curiosity and attitude of awe and wonder before the world
- A recognition of the finitude and perspectivity of human knowledge
- An emphasis on learning as an ongoing process that is never exhausted
- An emphasis on process over content
- An ability to see and understand many perspectives on complex matters
- A sense of vocation and personal appropriation regarding what it means to learn

Proposed Assessment Rubric

In view of these findings it is my recommendation that the student essays that comprise the data for this study be assessed utilizing the following rubric. These items should be presented using a semantic differential item rated on a graphic rating scale. The assessor would indicate his or her assessment on the relevant parameter by making a mark on a 100 mm line marked at the ends with the terms 'not at all' and 'very much.'

The writer shows an awareness of an	d sensibility to complexity.	
not at all	very much	
The writer draws from multiple source	es/perspectives	
not at all	very much	
The writer approaches the question v	vith curiosity and eschews simplistic treatment of the question	l
not at all	very much	
The writer recognizes the limitations	and perspectivity of the sources drawn upon	
not at all	very much	
The writer shows an understanding to develop	hat knowledge is not complete and that understanding continu	ies to
not at all	very much	
The writer shows his or her thinking p	process and illuminates the development of his or her ideas	
not at all	very much	
The writer shows an appreciation for	a diversity of perspectives	
not at all	very much	
The writer goes beyond citing source cited	s and expresses a personal understanding and synthesis of idea	as
not at all	very much	

TELEMACHUS TEST SCORE ANALYSIS INSTRUCTIONS

Underscore each statement with a 100 millimeter line (see template). For each item measure from the origin of the line on the left to the center of the mark or 'X' or the point of intersection of the two lines in a check mark ' $\sqrt{\ }$ ' made by the rater. Round down to the nearest whole number millimeter on the 100 mm line. That number becomes the 'measurement' for that item.

The spread sheet for recording these ratings should have a row for each participant, and a column for each rated item.

Participant I1R1 I1R2 I1R3 I1 AV

Carry out this patter for all 8 items.

GUIDELINES FOR ROLLOUT OF TELEMACHUS PROJECT

For New Student Orientation FL14:

New students must have ID#s.

Set up course shell in e-College: enroll students, upload prompts (2)

In each of the two consecutive 1-hour orientation sessions arrange for two control groups of 15 students to complete the written response to the prompt in e-College in the BRIC computer lab. They will have to be able to log-in to e-College and find the course. Having the computers set up in advance would save time required for first log-in.

Instruct all subjects to focus on the prompt as if they were brainstorming for a first draft, not polishing and self-editing as if for a final draft. Instruct those subjects hand-writing the essay to identify their work by *ID# only*.

Allowing time for explanation, instruction, and collection, actual writing time should not exceed 30 minutes for both hand-writers and computer users.

Associate Provost for Academic Affairs has the rubric and the instructions for scoring.

Decide how many score sets are necessary (at least 3) and arrange. IR Director has agreed to perform the data analysis, but not the narrative.

For FL16:

Mid-point re-write should be completed early in FL16, well before deadline for re-application for FA, in order to facilitate eligibility verification.

Randomly select 30 students that hand-wrote the base-line writing sample to hand-write at midpoint.

For narrative portion of assessment randomly excerpt a representative set (between 3-5) of baseline and mid-point samples by the same student. One evaluator (project manager is recommended, but could be one of the rubric scorers) narrates the development of intellectual maturity demonstrated in individual student writing between base-line and mid-point assessments. See 2014 Report for examples.

For SP18:

Close window of writing opportunity as late as possible for FA decisions, but as close as possible to the beginning of SP18.

Repeat control group of end-point hand-writers.

Repeat narrative description of intellectual maturity in selected excerpts of randomly selected student writing.

Repeat process for subsequent entering cohorts. This instrument is designed to generate meaningful qualitative, narrative and quantitative data, which may be appropriated as needed for varied purposes. Prompts were specifically chosen to resonate with the goals of the QEP. As institutional needs change going forward the prompts may be updated.

PROMPTS FOR TELEMACHUS PROJECT WRITING SAMPLES:

Prompt I:

At the turn of the last millennium the best scientific minds understood the universe to be geocentric and constituted by four elements. Eleventh century scientists and mathematicians recorded volumes of careful observations and calculations to support these theories as scientific fact. Were they wrong? Imagine what the best scientific and mathematical minds at the turn of the next millennium will think of the Big Bang, or String Theory, or Fractals. Is factual the same as true?

Prompt II:

What is heroism? Is it always associated with physical action and/or suffering? Is intellectual heroism possible? Give an example: imagine what form an intellectual heroic action would take and what its consequences would be if you performed it.