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Research Article

Revisiting the Impact of Humanities Lectures on Science and Engineering Students from Michel Serres' Educational Epistemology Perspective

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Abstract

Promoting humanities lectures in science and engineering institutions is a way to introduce humanistic education into the curriculum and reshape the humanistic spirit of technological universities, bridging the gap in modern civilization caused by rapid economic and scientific development. This approach shares similarities with French philosopher Michel Serres' educational epistemology. Through grounded theory, this study analyzes interview data from science and engineering students who attended humanities lectures and interprets their various impacts from Serres' educational epistemology perspective.

Keywords: *Educational Epistemology, Humanities Lectures, Science and Engineering Students.*

1. Introduction

Since March 3, 1994, when Huazhong University of Science and Technology held its first humanities lecture, this program has continued for nearly 25 years, with lectures held irregularly, averaging twice per week. The humanities lecture series has become a distinctive educational feature of Huazhong University of Science and Technology, predominantly known for its science and engineering programs. Its educational impact is profound, creating a unique landscape in technology-focused institutions and marking the beginning of the integration between humanities and scientific knowledge. Under the guidance of principles such as "a nation without science will collapse when attacked; a nation without humanities will collapse on its own" and "humanities without science is incomplete; science without humanities is deficient", Academician Yang Shuzi and others who advocated for these humanities lectures initiated a series of humanistic quality education lectures (Liu, 2005). The main purpose was to address the tendencies in Chinese higher education that emphasized science over humanities, specialization over foundation, and knowledge transmission over quality improvement. It aimed to introduce humanistic quality education into the curriculum, reshape the humanistic spirit of technological universities, and bridge the gap in modern civilization caused by rapid economic and scientific development (Yang, 1995).

This approach bears similarities to French philosopher Michel Serres' educational epistemology. Currently, there exists an insurmountable gap between humanities and science in our education. Modern education is built upon this distinction. All universities organize their departments accordingly, creating two types of people: the cultured but ignorant - literati who view astrophysics as monstrous; and the knowledgeable but uncultured - scientists who despise common knowledge. Literature scholars know nothing about square roots, while scientists read nothing but comics. While this distinction might seem amusing, it is extremely detrimental to innovation. This division contradicts the entire Western philosophical tradition: Plato was a geometrician, Aristotle was a doctor and biologist, Pascal invented probability calculation methods, and Descartes invented algebraic geometry (Serres, 1998). Serres believed that knowledge should not be divided into natural sciences and humanities; he argued that education's purpose is to cultivate learned third parties, knowledge troubadours. From this, we can see shadows of quality education, where students become masters of their learning, education becomes the growth of students' lives, and exploration of the unknown. This shares similar goals with humanities lectures in strengthening quality education, teaching students how to be human, how to think, and how to master and apply necessary knowledge in both science and humanities. However, Serres' educational epistemology is more far-reaching and idealistic; he suggests that compartmentalized forms of knowledge are neither ways to explore and

understand the world nor suitable frameworks for education (Xu, 2013). This paper attempts to reexamine from Serres' educational epistemology perspective: What should be the ideal goals of our university education? What impact have humanities lectures had on science and engineering students? From the perspective of student subjectivity, how do students view the significance of humanities lectures to them? How should humanities lectures be implemented in the future? These are the questions the author wishes to reexamine.

2. Research Background

Campus lectures emerged in mainland universities in the 1990s, and research on them developed accordingly. Through literature review, research in this area mainly focuses on the following aspects.

Campus lectures and general education: Research connects campus lectures with general education, using lectures as a means to implement general education, discussing their significance for general education, identifying current problems, and proposing countermeasures (Wang & Zheng, 2014). Another focus is on campus lectures and student development. This represents a larger portion of the research. Some studies discuss lectures as important vehicles for students' ideological beliefs and their influence; some examine their impact on student behavior; others explore their role in promoting student innovation capabilities. While these studies help deepen our understanding of these lectures' significance, they undeniably have limitations, which establishes the foundation for further research.

First, these studies mainly focus on theoretical possibilities - what these lectures could achieve, or what they should achieve. However, two aspects are overlooked: one is the lack of research on what actual impacts these lectures have had on students, and two is the failure to take students as subjects and examine what they have gained from these lectures from their perspective (Lu, Liu, & Yan, 2015). Second, these studies discuss campus lectures broadly without distinguishing between different types. However, in some universities, lectures are organized in several series with different purposes and characteristics, resulting in different impacts on students. Based on this analysis, we focus specifically on humanities lectures and their impact on science and engineering students, using interviews and phenomenological qualitative research methods to analyze the actual impact of these lectures from students' perspectives. Additionally, from the student perspective, we examine the degree of integration between humanities and scientific knowledge, and identify where the gap lies between current humanistic quality education and Serres' proposed educational epistemology.

3. Definition of Related Terms

Humanities Lectures: Organized lectures held by universities regularly or irregularly for specific purposes, covering academic or non-academic topics including culture, art, aesthetics, education, philosophy, Chinese studies, history, etc. Generally, these lectures involve inviting individuals with significant achievements in certain social fields or academic disciplines to speak about their research findings and engage in democratic discussion for mutual improvement.

Science and Engineering Students: Full-time undergraduate, master's, or doctoral students studying in higher education institutions, majoring in or researching physics, chemistry, biology, engineering, astronomy, mathematics, and various applications and combinations of these six major categories. This study uses students from Huazhong University of Science and Technology as examples, selecting students who have attended more than ten humanities lectures for in-depth interviews.

Impact: The indirect or intangible way of affecting or changing people's behavior, thoughts, or characteristics.

4. Research Methodology

This study employs grounded theory as its research method. Grounded theory is a research approach where researchers generally begin without theoretical hypotheses, starting directly from practical observation, inducting empirical generalizations from original data, and then elevating these to theory (Glaser & Strauss, 1967). While grounded theory must be supported by empirical evidence, its main characteristic lies not in its empirical nature but in its abstraction of new concepts and ideas from empirical facts.

This study intends to examine how humanities lectures have impacted students from their perspective.

The purpose of this study is to conduct formal interviews with science and engineering students who have attended more than ten lectures, analyzing their impact based on students' own verbal descriptions. This study will use phenomenological analysis methods to examine the impact of humanities lectures on science and engineering students through students' own descriptions.

Through attending humanities lectures in person, distributing questionnaires, and other means to find potential research subjects, we then inquired whether they were willing to cooperate and participate in this research, requesting permission to record their descriptions of how humanities lectures have impacted them. Before the interviews, we informed the

interviewees that we simply wanted to understand how these lectures affected them and were using a research method we had learned, encouraging them to talk freely to reduce pressure and allow them to speak comfortably in a relaxed environment. Throughout the process, we centered on the interviewees, using questions to guide them to speak as much as possible, only asking further questions when we needed to understand situations more deeply. Interview times were flexible and not predetermined, allowing for casual conversation.

Additionally, through personally attending multiple lectures, we experienced firsthand the lectures' impact on ourselves to better understand the interviewees' experiences. Moreover, during this process, we continuously chatted with different students to learn more about them through these conversations.

Each subject's recorded material was transcribed verbatim into text, and then these text materials were analyzed using phenomenological analysis. The procedural steps adopted in this study are as follows:

1. Read all subjects' descriptions to grasp their perceived impact of humanities lectures.
2. Extract important statements, paragraphs, and sentences directly related to the studied phenomenon from each description, deleting statements with identical or similar content.
3. Analyze the meaning contained in each important statement to summarize the impact of humanities lectures on science and engineering students. This analysis should not deviate from its connection with the original descriptions. These analyses are discoveries and explanations of impacts hidden within various situations related to specific phenomena, while these specific phenomena are presented through original descriptions.

5. Research Results

5.1 Foundation of Impact

When analyzing the interview transcripts, we first summarized what forms the foundation for students' participation in humanities lectures, initially understanding how many students attend humanities lectures and whether all students can expand their humanistic literacy through these lectures to understand humanities knowledge beyond their professional expertise.

From the data, we found that the lectures' impact on students is built on two foundations. First, students themselves have an interest in humanities knowledge such as literature, history, and philosophy. Three students mentioned this point in the interviews.

"It's mainly personal interest. I was interested in liberal arts before, and in university, I'm still interested in politics, economics, literature, history, and philosophy".

"It's mainly personal interest and hobbies. Actually, I've been interested in history and politics since high school".

"I joined the Chinese Classical Studies Society in my freshman year. Actually, I wanted to apply to Wuhan University when I was applying for colleges".

This situation represents the majority - students choose to attend lectures due to their personal interest, which further stimulates their interest during attendance. This is also reflected in students' comments that "there are two extremes in lecture attendance - those who attend are always the same people, while others never attend".

Second, dissatisfaction with the current teaching situation, desire for new approaches, and feeling lost about university life, hoping to gain guidance through lectures.

"I feel that what teachers teach in class is quite rigid, without living content - it's all very factual. Humanities lectures aren't very objective; they contain discussable content, different from both the teaching mode and content in regular classes, more novel and closer to society".

"When I first came as a freshman, I felt lost, not knowing what to do".

These two foundations also drive students to attend lectures, manifesting differently in different students. This relates both to students' personal interests and their learning stage, with the latter situation more common among beginners. This shows that humanities lectures mainly help students who are proactive and consciously seeking change to overcome periods of confusion and difficulties. However, for students who are not interested in humanities knowledge or lack self-assessment, humanities lectures cannot have an impact. Lecture attendance is a proactive, conscious activity - how should schools influence those students without such awareness? Looking at the foundation of lecture impact, its coverage cannot be more comprehensive; those science and engineering students who were originally uninterested in humanities subjects remain "scientists who despise common knowledge".

5.2 Mode of Impact

The impact of humanities lectures on students is subtle and gradual, being just one influencing factor, and a long-term process with delayed effects. When asked about the lectures' impact, students generally find it difficult to articulate clearly, experiencing it as something vague - they feel its presence but cannot specify it.

"There should be some impact. I don't feel any direct impact, but there must be some influence. At least my horizons have broadened, though I can't specify exactly how".

"Some things are all part of a comprehensive process. I don't just attend lectures; I also read books, communicate with others, watch TV, news, and so on".

"I don't feel I have anything more than others. This might not be obvious, it will gradually show over time, it's a process". This is similar to quality education - its results are difficult to observe as it influences one's thinking, thoughts, and reflection on life. Our subject-based education problem is too severe, starting from secondary school, making students' knowledge systems incomplete. This is far from Serres' proposed knowledge integration. When our educators see the problem, they try to narrow the gap, but this process is long and difficult. Humanities lectures are an entry point; to truly achieve knowledge integration and become learned third parties, our universities still have much work to do.

5.3 Aspects of Impact

The impact of humanities lectures on students mainly manifests in the following aspects:

5.3.1 Expansion and Deepening of Humanities Knowledge

First, the expansion of knowledge and broadening of horizons - this is both the initial purpose for some students and a concrete impact on students.

When asked to summarize the lectures' impact in one sentence, all students mentioned understanding humanities knowledge: "mainly broadening horizons", "primarily expanding one's knowledge base; lectures open a window, showing that some people think differently, and that things have another side", "lectures are quite enriching, covering knowledge from various aspects", "experiencing different viewpoints".

Additionally, this knowledge represents the latest research findings from invited scholars, allowing students to learn about the newest developments in disciplines firsthand.

Second, enhanced knowledge systematization and promotion of logical thinking ability:

"I feel that a good teacher, even when discussing a very ordinary, specialized topic, will present it from a broader perspective, giving a sense of grasping the essentials. They won't just talk about that specific topic but will connect it with other related topics, viewing it from a larger professional scope, standing at a different angle".

"Because I usually like to read various things, but it feels confused and unsystematic. When they lecture, it feels like they've presented an outline. So, I suddenly feel like I've established a framework".

This relates to the lecture scholars, as lectures often invite experts or authorities in certain fields who have devoted years to research in their areas or specific topics. Therefore, they have formed their own systems of thought and can provide students with a relatively complete system, whereas students initially possess scattered content.

Finally, deepening and comprehensiveness of knowledge

These lectures guide students to read related books outside of class, thereby deepening students' understanding while making their knowledge more comprehensive.

When asked whether they would look up additional materials related to lecture content after class, students responded:

"Occasionally I'll look things up, for particularly interesting topics, I'll borrow some books".

"Actually, these lectures serve more as a guiding function, leading you to become interested in certain aspects. Further exploration still requires learning from books or through other means. One or two hours can't cover much content, it just draws your attention to this aspect, makes you develop a strong interest in it, though brief, you'll remember this interest and continue to explore".

Of course, some students don't pursue further reading due to time constraints. "No time", expressing students' busyness and helplessness.

Although each lecture only lasts an hour and a half, with teachers only able to present some key points and students only getting preliminary exposure, it still points students in the right direction, guiding them to research and think about more content, thereby enabling deeper and more comprehensive understanding.

In summary, humanities lectures promote students' humanities knowledge in terms of quantity expansion, deepening, and structural comprehension, especially in knowledge expansion.

Throughout the interviews, students' excitement when encountering previously unfamiliar knowledge was evident. Of course, it also made students aware of their deficiencies, stimulating learning motivation. One student said, "The more you listen, the more you encounter, the broader your knowledge becomes, the more unknown things you discover, the more you feel there's so much you don't know".

Clearly, the integration of scientific and humanities knowledge helps form complete foundational knowledge, and humanities lectures precisely meet this requirement for science and engineering students.

5.3.2 Cultivation of Humanistic Spirit

This mainly manifests in changes to students' outlook on life and values, particularly in deepening their understanding of society, establishing broader ideals, increasing social responsibility, and hoping to do more valuable things.

One student said:

"When I first came as a freshman, I just wanted to study my major well, but now I even want to change careers. When applying for university, I was a bit unclear, just thinking I wanted to build houses, seeing those buildings felt great, but later I felt there were more things worth doing".

"I feel China's legal system is really inadequate, with many unfair phenomena that are systemic problems. Sometimes I think just building some projects or buildings won't solve the problems. If you want to maximize your value (speaking broadly), I need to pay attention to social and current political aspects, to strive for freedom, democracy, and equality that I didn't understand before, not just limiting myself to being a technician, being just material. Not just being the 'material' in wood material, but being someone who understands the way".

"Previously I thought Zhuangzi's philosophy of avoiding official positions was particularly good, but now I feel there's a kind of responsibility, must enter official service, like Confucius said. Before I might not have understood, feeling a kind of pride, thinking becoming an official was somewhat... so should avoid official service, should be detached, feeling that was particularly good. Now I don't see it that way, each stage is different, I think at our stage we should enter official service, when we're seventy or eighty, then we can be detached from worldly affairs".

"Being a teacher can also pay attention to society; can express opinions; can similarly influence government decisions, this also belongs to entering official service; can also discuss certain issues with students, possibly influencing them, which is also good; moreover, there are officials in universities too, for example if you become a principal, you can do many things, can change many things".

Evidently, this student's attitude changed from "avoiding official service" to "entering official service", from studying their major well and serving society as a technician to striving for loftier ideals and becoming someone who understands the way. Meanwhile, they also view issues more rationally, seeking to make achievements while adapting to society.

Another student said:

"As a science and engineering student, I also know China's current technological gap with Germany and Japan - generating one degree of electricity requires 60 more grams of coal than Germany, this is our equipment problem. I also know our mechanical manufacturing; intellectual property rights are all in foreign countries. I feel I can make contributions to the country in technology, which is also significant. A engineering student isn't meant to change society but to help raise this country's theoretical and technological manufacturing level by one step".

"Humanities lectures have made me recognize the responsibility of university students, although we might not be able to bear this responsibility, but I know such a responsibility exists, maybe one day that person will be me".

This student became clearer about their social responsibility after attending lectures while also becoming aware of other responsibilities.

These two students had attended many lectures - one over thirty times, the other hundreds of times - while two other students didn't mention this point. Of course, this might result from multiple factors, as during interviews, family background seemed relevant, but due to the sensitivity of this issue, we didn't probe deeper. Regardless, these lectures clearly strengthened their sense of social responsibility, whether through entering official service or other means to realize greater value, or through mastering their professional knowledge to serve society and the country.

Clearly, the integration of scientific and humanistic spirits helps form correct life pursuits.

5.3.3 Formation of Humanistic Thinking

Science and liberal arts students think differently - generally, science students' thinking patterns are more logical, viewing things more objectively and linearly, while liberal arts students show more flexibility. During interviews,

students all mentioned that after attending lectures, their way of thinking about problems became less extreme, instead viewing issues from multiple angles and dialectically, learning to understand, accept, and accommodate different viewpoints rather than using their own as the only judgment standard; thinking more deeply about phenomena behind appearances; thinking more broadly rather than just limiting themselves to their specialty; being more cautious and humble, not easily negating certain things, thinking thrice before acting.

When asked "After attending so many lectures, do you feel you've changed in any way?" one student answered:

"More mature, with a deeper understanding of society. In high school, I was quite an angry youth".

"And now?"

"Now the passion is still there, but the behavior is gone. Because I've attended quite many lectures, I feel more moderate now".

"You said you feel you understand society more deeply, how does this mainly manifest?"

"I used to think society was quite dark, feeling society was particularly unfair. Now thinking about it, it's not particularly unfair. Society is so big, maybe 60% is good, 40% is dark, we just see the bad side. Actually, we should be more comprehensive, our society is developing, slowly changing, the general direction is good, is progressing. It's just that problems are acute, and we happen to see these acute aspects".

"These lectures expanded my thinking, made me more mature, exposed me to some diverse cultures, or in official terms, cultural diversity".

Another student answered:

"When there are certain unfair phenomena in society, as a science and engineering student focusing on technology, you won't think about some things so deeply, feeling it's a very simple matter, just complaining, feeling it's unfair. Won't think about what institutional problems exist, etc. Some humanities disciplines deal with these aspects".

"Sometimes based on your common sense or previous education, you form your own views on certain issues. Sometimes you feel the contradiction is too great (with the lecture), but I just feel that this problem can be thought about this way, although I might not agree, I just understand how they think. It's just a simple thought - turns out there are people who think this way".

For the other two freshman and sophomore students, they were beginning to move out of their highly managed high school state and gradually becoming independent.

"I now feel I should have decision-making power, not be extreme, not mechanically do what others say".

"I feel the lectures speak more about spiritual things, a kind of spiritual pursuit, letting you discover some problems, become more independent, able to think about problems yourself, not controlled by others, think independently. While what teachers and counselors talk about is more practical".

Through the above analysis, we find that when dealing with things and viewpoints, students show more independence and inclusiveness, viewing and handling things more moderately.

Clearly, the integration of scientific and humanistic thinking helps form excellent thinking quality.

The lectures' impact on students mainly manifests in these three aspects but is not limited to them. For example, they also change students' attitudes toward liberal arts. "No longer feeling liberal arts are false, grand, and empty things, but more valuable, and even fundamental. Sometimes skipping major courses to attend these lectures or related content". Because in their view, "professional courses can be made up, but for a person's development and cultivation, these are more important than specialization". This way, it can deepen the integration between science and liberal arts.

From the interview transcripts, we can see that humanities lectures play an important role in students' comprehensive development, improving their humanistic literacy and embodying the connotation of quality education. This is where we can have expectations for education. Looking at the significance of humanities lectures from Serres' educational epistemology perspective, we place hope in them as they begin quality education like a stepping stone and start to narrow the distance between disciplines. How to further break through the barriers of subject-based education is what university education needs to explore further in the future.

6. Future Expectations

We can already see from the interviews some space that needs further exploration. The lectures are short, cannot reach all students, and students lack questioning in lectures, mostly accepting what teachers say. This is partly because the main speakers invited are experts in their fields who have formed complete systems for their lecture content. On the other hand, it's due to students' lack of understanding in these areas. When asked about participating in discussions after lectures, almost none would participate.

"I generally ask few questions, I... don't know if I'm too cautious or... For any issue, I need to understand it comprehensively first, then organize my own views. So, I feel the time is too short, I can't think it through clearly, although I occasionally ask some questions, but these questions aren't particularly big or very deep. If you say as a commentator, I come to communicate with you, such situations are rare".

"I go to listen, generally don't speak up, feeling I know too little, can't raise questions with depth. Now it's still a process of acceptance, haven't formed my own views yet, don't even know what I insist on, what right do you have to speak up".

"I feel I'm quite shy, dare not speak. Also, can't raise any good questions. Haven't tried, maybe after trying, it would be better later. Also don't have this awareness, didn't include this item in my plan at all, suddenly being asked to raise questions, really can't".

Evidently, throughout the process, most people are in a state of "speechlessness", mostly agreeing with and accepting what teachers say. Even if teachers' views differ from their own, they accept them as another way of thinking, another perspective of looking at problems, rather than questioning teachers' viewpoints.

This is a common problem in our education where teachers are often seen as permanent authorities. To change this problem, the most direct way is to establish equal and mutually supportive teacher-student relationships. Teachers should encourage students to question more, as this cultivates attitudes toward life and learning. Only those with questioning spirits can possibly innovate and break through.

We expect students to be thinking, questioning, and innovative, just as Serres wrote in *The Learned Third Party*: "Thought only begins when the thirst for knowledge breaks free from all compulsory guidance" (Serres, 1998). Serres' knowledge integration is the ideal state we want to pursue, but how to reach this ideal state is what we need to think about. Humanities lectures and general education are being vigorously promoted in universities, and we can see their impact. During the 25 years of humanistic quality work reform at Huazhong University of Science and Technology, how to break through these barriers is also what future young educators need to work on. The learned third party proposed by Serres is education's ideal state, and this ideal state can begin with humanities lectures and general education courses. The future direction of general education needs to break through further. Perhaps we can first take today's impressive Finnish education as a research object, gradually breaking away from the traditional teaching method that solely relies on clearly demarcated subjects, and instead adopting theme-based, problem and phenomenon-based learning methods that combine theory and practice, to see what educational impact this approach has. Today as we begin to rediscover the meaning of self and life, can't we find in the learned third party the image and appearance of future learners that Serres had already outlined for education? Shouldn't our ultimate educational ideal goal be to cultivate learned third parties? Every student should have a complete, life-oriented learning method, learning to become a complete person. Our universities should further promote holistic general education, implementing non-specialized education in the first year to let students comprehensively understand various knowledge, then choose majors they want to continue specializing in based on their interests and hobbies. I think this can well enrich students' comprehensive qualities.

Author Biography

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References

1. Glaser, B., & Strauss, A. (1967). *The Discovery of Grounded Theory: Strategies for Qualitative Research*. Chicago: Aldine.
2. Liu, X. J. (2005). Practice and research promote each other: A review of ten years of cultural quality education at Huazhong University of Science and Technology. *Higher Education Research*, *2005(3)*, 1–6.

3. Lu, Y. X., Liu, J. T., & Yan, H. (2015). Research on the educational function of campus lectures in science and engineering colleges. *Journal of Heilongjiang Institute of Education, 2015(10)*, 18–19.
4. Serres, M. (1998). *Michel Serres' Pantopia* (T. Chen, Trans.). Taipei: Maitian.
5. Wang, Y. P., & Zheng, Q. J. (2014). The impact of campus lectures on the humanistic quality education of science and engineering students: A case study based on humanities lectures at Jiangsu Polytechnic College. *Journal of Jiangsu Polytechnic College, 2014(3)*, 100–104.
6. Xu, H. R. (2013). Exploring Serres' educational epistemology. *Contemporary Education Research Quarterly, 2013(3)*, 33.
7. Yang, S. Z. (1995). Inheriting traditions, facing the future, and strengthening humanistic quality education. *Research on Higher Engineering Education, 1995(4)*, 2.

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