

# Introduction Part of the Knowledge and Intelligence Course

Honglin Wu \*

School of Computer Science and Engineering, Northeastern University, Shenyang, China

---

**Abstract:** It is necessary for students to have a deep understanding of knowledge and intelligence. We have been teaching Knowledge and Intelligence course to the students majoring in computer science and artificial intelligence at Northeastern University since 2018. This paper is about the instructional design of the introductory part of the knowledge and intelligence course. We use a question to draw out the significance of the Knowledge and Intelligence course: "When did humans part ways with other animals?" We organize students to debate whether "walking upright" or "using tools" can better distinguish humans from animals. Through the teacher's comments on the debate, students will find that both "walking upright is a sign that distinguishes humans from other animals" or "using tools is a sign that distinguishes humans from other animals" are correct. Their essence is that "knowledge is the mark that distinguishes humans from other animals." Through the exploration and inheritance of knowledge, humans gradually parted ways with other animals. Students will understand the great significance of the Knowledge and Intelligence course by this way.

**Keywords:** Introduction; Knowledge; Intelligence.

---

## 1. Introduction

In the new century, people have been hit by both the explosion of knowledge and artificial intelligence. In order to live better in this era, it is necessary for people to have a deep understanding of knowledge and intelligence. Therefore, we have been teaching Knowledge and Intelligence course to the students majoring in computer science and artificial intelligence at Northeastern University since 2018. We plan to write a series of papers summarizing the teaching experience of the past 5 years. This paper is the second in such series, the instructional design of the introductory part of the knowledge and intelligence course.

## 2. The Significance of Teaching the Knowledge and Intelligence Course

We use a question to draw out the significance of the Knowledge and Intelligence course. The question is: "When did humans part ways with other animals?" "We show students pre-recorded videos for their reference. This video is an excerpt from the science fiction novel *Heard the Truth in the Morning*. In our experience, students will be greatly inspired by this video as they think about the previous questions.

After watching the video, students are thinking about why "the primitive people who looked up at the stars were great?". Then think about "How can a human being look up at the stars?" and so on. After a series of reflections, the students had a deep understanding of the great significance of walking upright.

However, other students believe that the using tools is the mark that distinguishes humans from other animals. We can organize students to debate whether "walking upright" or "using tools" can better distinguish humans from animals.

At the end of the debate, through the teacher's comments, both sides often find that whether it is "walking upright is a sign to distinguish people from other animals" or "using tools is a sign to distinguish people from other animals", the

essence of the argument is that "knowledge is the sign to distinguish people from other animals". This leads to the meaning of the Knowledge and Intelligence course. Next, we will introduce the relationship between knowledge and walking upright/using tools, respectively.

## 3. The Relationship between Upright Walking and Knowledge

Animals other than humans always walk prostrately. They have a limited field of vision. They receive less stimuli from the outside world than humans. Limited sensory stimulation can only produce limited sensory content. It is not possible to make a leap from feeling to thinking.

Millions of years ago, hominids began to walk upright. Their upright state gives them a very good view. The all-round vision allows hominids to obtain rich sensory stimulation and obtain more sensory content. These large amounts of stimuli and information will spark their curiosity. Hominids, who were curious about the world, made a leap from feeling to thinking. Led to hominids' desire to know the knowledge about the world.

In addition, after the transformation of human forelimbs into upper limbs, human running ability is significantly degraded due to the division of labor between hands and feet. Forcing humans to use their upper limbs to solve the existential crisis caused by the deterioration of their running ability. The flexibility of the hands is greatly enhanced. The weak upper limbs have an unprecedented ability to refine movements. The complex hand-brain coordination has made the corresponding control ability of the brain have been exercised unprecedentedly. Hands that become more dexterous and a brain that become more flexible promote feeling, thinking, exploring, re-feeling, re-thinking, and re-exploring.

## 4. The Relationship between Using Tools and Knowledge

Different species evolve in different ways. The evolution

of animals other than humans is adaptive evolution. Human evolution is a confrontational evolution. The evolution of human resistance is accomplished by understanding the world and transforming the world. Human beings cannot blindly confront nature, but must start by understanding the objective laws and transform the world without violating the objective laws. Humans can't use the power of their limbs alone to transform the world, they need tools.

Humans build tools based on knowledge and integrate knowledge into the tools. When using tools, you don't need to have a deep understanding of the knowledge in the tool, you just need to master the rules of using the tool. Human beings rely on tools to pass on knowledge and transform individual knowledge into human public knowledge. The inheritance of knowledge has led to the explosive evolution of human beings. Not being able to use tools has kept other animals from evolving much slower than humans.

## 5. Conclusion

We use a question to draw out the significance of the Knowledge and Intelligence course: "When did humans part ways with other animals?" We organize students to debate whether "walking upright" or "using tools" can better distinguish humans from animals.

Through the teacher's comments on the debate, students will find that both "walking upright is a sign that distinguishes humans from other animals" or "using tools is a sign that distinguishes humans from other animals" are correct. Their essence is that "knowledge is the mark that distinguishes humans from other animals." Through the exploration and inheritance of knowledge, humans gradually parted ways with other animals. Students will understand the great significance of the Knowledge and Intelligence course by this way.

## Acknowledgments

We would like to thank "The 2021 3rd Demonstration Courses for Thought of Northeastern University (Machine Translation Course)".

We would like to thank "The 2021 Ministry of Education Industry-University Cooperation Collaborative Education

Project (Machine Translation Course / Natural Language Processing Course)".

## References

- [1] L.M. He: *The Principles of Knowledge* (Beihang University Press, Beijing 2007).
- [2] C.X. Liu: *Heard the Truth in the Morning* (Jiangsu Phoenix Literature and Art Publishing, Nanjing 2019).
- [3] R.P. Perry, J.C. Smart: *The Scholarship of Teaching and Learning in Higher Education: An Evidence-Based Perspective* (Springer, Dordrecht 2007).
- [4] G.D. Phye: *Handbook of Classroom Assessment: Learning, Achievement and Adjustment* (Academic Press, Cambridge 1996).
- [5] H.L. Wu HL, K. Wang: Natural language processing subject organizing by TTD model based on stepwise refinement framework, the 2nd International Conference on Information Science and Education (Nanchang, China, November 26-28, 2021), p.353-356.
- [6] J.D. Novak, D.B. Gowin: *Learning How to Learn* (Cambridge University Press, Cambridge 1984).
- [7] J. Millman: *The New Handbook of Teacher Evaluation* (Sage Publications, London 1981).
- [8] H.L. Wu, F. Zhang, J.W. Cheng, K. Wang: Determine teaching content using a bottom-up approach, *Advances in Social Science, Education and Humanities Research*, Vol. 369 (2019), p.597-600.
- [9] T. Buzan, B. Buzan: *The Mind Map Book: How to Use Radiant Thinking to Maximize Your Brain's Untapped Potential* (Plume Press, New York 1996).
- [10] D.L. Stufflebeam, C.L.S. Coryn: *Evaluation Theory, Models, and Applications*, 2nd Edition (Jossey-Bass, Indianapolis 2014).
- [11] H.L. Wu, K. Wang: Design of the introduction part of information processing and machine translation course for students majoring in computer science and technology, the International Conference on Information Science and Education (Sanya, China, December 4-6, 2020), p.543-546.
- [12] J.D. Novak: *A Theory of Education* (Cornell University Press, Ithaca 1977).