Physics Integration Lesson 7 – Limited Knowledge

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Is it necessary to know something comprehensively or completely in order to know it correctly? This may seem like an odd question, but it has application in many areas of life. Historically we came through an era influenced by postmodern thinking. This movement brought into question many of the notions of knowledge and certainty assumed to be true by society for hundreds of years. Does truth 'really' exist or is it a social construct used to impose the will of one person on another?

One method of doubting the existence of truth is to question the ability of anybody to have a comprehensive understanding of anything. If you don't know the socio-political environment of the ancient Middle East and the nuances of ancient languages, how do you know the Bible communicates anything of value to a person of the 21st Century? We see this as an attack on something we believe in dearly, but we are not immune to using the same technique when it is to our advantage. We apply a severe form of skepticism on topics like evolution and climate change to reject them, rather than critically evaluating the merits and shortcomings of the idea.

One thing we learn from physics is that comprehensive knowledge is not necessary to know something is true. The collision between two objects is incredibly complex: surfaces deform, heat is generated and sound is emitted. The force of collision is not constant, but is a function of time as the objects interact. Regardless of this complexity, it is a well-established fact, both experimentally and theoretically, that the integral of the force of interaction with respect to time, known as impulse, is always equal to the change of momentum of the objects. Furthermore, treating the collision as a black box, the complex force of interactions.

- The success of physics rests on the fact that the creation can be understood without knowing all the details. Although we take this for granted, there is no objective reason why this ought to be true. What would be the consequences for us, if the Creator chose to make the laws of physics hard to be discovered?
- 2. Can you come up with an example from life, other than physics, that demonstrates that it can be understood without knowing all of the details? Explain.