

WHY SHOULD I LEARN THAT?



ESSAYS ON THE
IMPORTANCE OF LEARNING

KEVIN J.
BROWNE

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What should be taught?

This has become an important question for me as the father of an almost 2 year old child. The world of education is filled with theories on what children need to learn and how best to teach them. I think we can safely say that we want our children to end up happy, healthy, well-adjusted, self-actualized, self-sufficient, contributing members of the human community. The question is how do we help them achieve these ends. In current terminology, what are our learning outcomes?

I actually dislike the "learning outcomes approach" in general because, among other things, it presumes that we can push the right buttons in our students and they will automatically respond. But, in reality learning is each individual's own responsibility and what educators can do best is set the stage and create supportive conditions for children to have the best chance of learning and succeeding in their education. Ideally, educators should be mentors.

But, even though there are problems with the outcomes approach to education, it does make sense to ask what some general goals should be for educating our children, whatever model we choose to foster these goals. I think some of the most important goals are as follows (I've placed the specific subjects from my curriculum in parentheses that seem to support the specified goal):

Creativity: The ability to be creative, in both one's personal as well as professional life, is an important skill and one that too often seems to be educated out of children. To foster this skill it is important to expose children to many different forms of art as well different ways of thinking about things in general. This is one of those skills that can be easily incorporated into almost any subject but it can also too easily be overlooked in

an effort to teach a specific subject in a specific orthodox way.
(Art, Poetry, Plays, Thinking)

Problem Solving: One of the main reasons to foster creativity is to help improve problem-solving skills. This is a component that can also be easily integrated into almost any subject as an active part of learning. The emphasis here is on the application and use of knowledge as opposed to the mere acquisition of knowledge. (Math, Thinking)

Life Skills: By the term "life skills" I mean several different things. Certainly this would include such areas as finance (i.e. saving/investing/debt management), time management, and cooking but it should also include interpersonal skills as well to foster the ability to get along with others, form lasting friendships, romantic relationships, and work related skills. (Life Skills)

Literacy: This obviously involves the first two of the 3 R's: Reading and Writing. But I think literacy also involves good communication skills in general and so should include public speaking. Also, to be included in this broad area is cultural literacy and a familiarity with literature and language. (Language, Reading and Writing)

Numeracy: The third of the 3 R's: Mathematics. But, numeracy entails something besides knowing the basics of algebra, geometry and calculus. More importantly it involves having a good sense of numbers, being able to understand and use statistics, and having a good handle on practical everyday math. (Mathematics, Thinking)

Self-Learning: Ideally, learning is not something that stops once a child finishes school and graduates. Learning is a life-long process and one that is largely in the hands of each individual. The best we can offer to our children is a set of good learning skills such as those mentioned above and a broad

exposure to the basics of human knowledge. Along with this we should cultivate in them the ability to learn on their own since we cannot hope to teach them everything they will ever need to know in their lifetime. We can get them started and encourage them to keep learning but where they end up and what they need to know to get their is to some extent out of our hands.

Having said that, I think the case can be made that there are some specific subjects that ought to be taught as a way of fostering these general skills and broadening our children's horizons.

The Utility of Learning

Before I begin this series on the importance of learning various subjects in common course curricula, I thought it might be useful to pause a moment to ponder on the connection between utility and learning. The question "When am I ever going to use this?" is the bane of every teacher's existence. What it implies is that the only things worth learning are those that will be used. I will be arguing in the forthcoming series that you can make a utility related argument for each and every major subject in the curriculum but what if you couldn't make such an argument? What if a particular subject such as history or music or philosophy had no use? Is it no longer worth learning?

There are several problems with using utility as the sole criterion to determine what ought to be taught and what ought to be learned. First, there are other good reasons to learn most anything. Second, there is really no way to predict what

specific subject or part of a subject will be useful to someone in the future with any accuracy.

Why should we only be interested in learning things that are useful? As the physicist Richard Feynman noted, a sufficient reason for learning is simply "the pleasure of finding things out." So what if you don't use what you've just learned? It is simply inherently enjoyable to learn new things; or it should be. While not everyone will enjoy learning the same things, if you find no joy in learning something new independent of whether you will use the knowledge this is not a problem with the subject matter itself but may be a problem with your attitude towards learning. By emphasizing utility we have trained students to only value that which has immediate and obvious utility and this is a mistake since it deprives them of this joy of learning.

To say that the only things worth learning are those with utility implies that we can know with certainty what will be useful. While this may be true in the short-term, it becomes more difficult to judge the utility of a subject the farther ahead and more long-term we look. As another physicist, Niels Bohr, once said "prediction is difficult especially about the future." We really can't know what specific subjects or parts of subjects will be useful in the future. If we only teach what seems practical and useful in the present we are surely robbing ourselves of useful insights and learning that will serve us well in the future.

But, I can hear the criticism from some already. There are some subjects that have never been useful to anyone. Some things are just pointless to learn. I hesitate to list what some of these subjects might be but perhaps you already have one or two in mind. If so, I invite you to join me over the next dozen or so blog posts as I try to lay out the case for every major subject being important to learn. I will be focusing mostly on utility but I hope to have shown here that there is no reason to concede

the argument for learning something just because it has no obvious or immediate utility.

The Importance of Art

We begin this series on the importance of learning the various academic subjects with art. From there I'll be proceeding alphabetically through the curriculum. Art is often the first subject to be cut when budget constraints loom and this is likely because it seems less central to learning. After all, what practical values are served by learning art?

As I tell students in my introduction to logic course, many subjects have an indirect value to education. That is, while learning the subject matter may not seem practical, the act of learning itself is valuable. For most courses though it is possible to determine direct and indirect values so let's look at art in this light.

By art I mean the visual, plastic arts such as painting and sculpture. The importance of learning about these arts is not only in studying past works but in practicing art as well. Why could learning about these arts be valuable? There are several benefits including improving one's skills in abstraction, imagination, and creativity.

Abstraction: For much art, even representational art, learning to appreciate it encourages the ability to reason in the abstract. Since art involves the use of symbols to convey concepts

Imagination: Another benefit of studying art is to improve one's imagination. While studying past works of art helps improve

one's ability to reason in the abstract, practicing art helps fire the imagination.

Creativity: Related to this is the benefit of improving one's creativity. One of the central values of any education is fostering creativity. Not only is this a vital skill in your work life but it is also one of life's important values.

Finally, I should mention the fact that art provides an important means of understanding and appreciating beauty. But, still, one can ask what is the practical value of improving one's abstraction, imagination, and creativity. Art allows us the opportunity to see the world in new ways with minimal risk. We can try out new options, new perspectives, and new ways of approaching life and its problems in a risk free space. As Morse Peckham points out in his book *Man's Rage For Chaos: Biology, Behavior, and the Arts*, "art is a rehearsal for the orientation that makes innovation possible." In a world driven by information and innovation, what could be more practical?

The Importance of Astronomy

At some time nearly everyone looks up in the sky in wonder. There are so many stars, galaxies, and empty space. Are we alone? Could there be other planets which are teeming with life as Earth is? Did everything really begin with a Big Bang? So many questions but they seem to have no answers. Are the benefits to studying astronomy even if such questions cannot be answered. Let's look at it.

Questions such as the ones listed above should seem important in and of themselves whether or not the answers are easily found or whether the answers have any practical significance. The study of such questions seems to be a deeply human exercise and one worth the time and effort.

Perspective: Sometimes our problems seem so immense and, our accomplishments so outstanding, our importance as humans a given. But, contemplating the universe and its origins helps to put our own lives into perspective. We needn't feel any less proud of what we've accomplished or feel that our lives have less meaning in the face of such contemplation. However, sometimes it is useful to contemplate something larger than ourselves and consider how we fit into it. What could be a more appropriate subject of such contemplation as the universe?

Orientation: Closely related to perspective, knowing where you are and how you relate to others is of fundamental importance (and an important aspect of learning geography which I will address in a later post). Certainly orienting yourself in the larger context of the solar system, galaxy, and universe completes this process.

Understanding: Our attempts to discover the origin of the universe have also contributed to our understanding of the fundamental nature of reality which is, at least partly,

explained by two major scientific theories: relativity and quantum mechanics. Each of these theories provides surprising, and surprisingly useful, insights into how the world we inhabit works.

Exploration: A fundamental human drive to explore can be satisfied, if only indirectly, by studying the solar system, our own galaxy, and the universe as a whole.

The very rhythm of our days, months, and years is set by what happens in the world that astronomy explores. Recognizing this and understanding it fulfills fundamental our human need to explore, understand, and satisfy curiosity. Observing the movements of the moon and stars puts us in touch with something larger than ourselves, forces us to re-orient our perspective and sense of time, and in a busy, hurried, stressful world in which we live, such values are important to remember and cultivate in a way that studying astronomy uniquely facilitates.

The Importance of Biology

It would seem fairly obvious that biology is important. As the study of life, an understanding of biology is critical to many areas of our lives including our health and well-being. In addition to this, understanding biology allows us to appreciate what Richard Dawkins calls "the greatest show on Earth:" evolution. In addition to some standard reasons for studying biology I want to examine some other values that biology helps to foster.'

Health: A common argument for studying biology is that it helps us understand how to improve our health and diet. No doubt this is a good reason and the most practical one to examine. What could be more important as a basis for living a good life than to be reasonably healthy?

Interdependence: Life on Earth is interdependent in many different ways from predator and prey to symbiosis. Studying biology places us firmly into this interdependent web of life.

Ingenuity: The demands of survival in the wild lead to some pretty ingenious habits in plants and animals. Not only are these amazing and interesting to learn about but can potentially provide inspiration for human problem solving as well.

Endurance: Life thrives in the most unlikely places from deep in the ocean, hidden in dark caves, freezing and near boiling water. All demonstrate the endurance of life. As the Jeff Goldblum character in Jurassic Park said, "life finds a way." Again, not only is this immensely interesting to learn about, it can be inspirational as well. No matter how difficult our lives

seem and how insurmountable our problems appear, there is always a way to endure and prevail.

Evolution: One of the most important, not to mention well tested and observed theories in science is the theory of evolution by natural selection. Understanding this theory is a major step in anyone's education as it is often counter intuitive and not immediately obvious or easily observable on the short time span of a human life. But, understanding it ought to be a major goal of the study of biology and is a rewarding pursuit. As Darwin recognized, "There is grandeur in this view of life." What better argument for studying biology than the appreciate of such grandeur and an understanding of our place in it.

The Importance of Chemistry

I remember as a kid being very bored in chemistry class. A few experiments here and there and a mountain of equations somehow could not compel me to curiosity for molecules and chemical reactions. How unfortunate. Chemistry is not only fascinating to study and practice but important as well. It is a window into the foundations of biology and physics and can provide insights both practical and interesting.’

Foundations: At the core of both biology and physics is chemistry since this science addresses how molecules interact and connect with each other. Any understanding of how things work in the world, both organic and inorganic eventually comes down to chemistry. Of course, this begs the question, why should anyone care about understanding how things work in the world at all?

Health: One reason to care about understanding is that it is good for our health. What we eat, how it is cooked, and how it is digested are all functions of chemistry and understanding the chemistry involved is an important step towards taking charge of one’s own health.

Connections: Chemistry is about how molecules connect and interact but can chemistry give us any insight into our human and social connections? Perhaps. Often in chemical reactions the result is much different in composition than the original inputs. Dangerous elements can mix to create beneficial molecules; salt is a good example of this. Unexpected results are a part of connections in life as well. Benefits come from such connections all of the time.

There are so many practical benefits to the study of chemistry it is hard to provide a broad overview in such a short space. But, if you think about it nearly every part of your life is

related in some way to chemistry. What you wear, eat, drive, where you live, the air you breathe, what medicines you take. All of these areas of your life where you have to make decisions would be enhanced by some working knowledge of chemistry. So, take a look around and see how your life is touched by chemistry and begin to study these areas on a molecular level. You never know what you might learn and what connections you might make!

The Importance of Economics

Surely one of the easier subjects to show the importance of is economics. Yet, while it has obvious practical benefits it seems to be rarely taught well or with an eye towards understanding fundamental principles or how they apply in the real world. Economics courses seem to be heavily skewed towards explaining theory but not practice. That is, when such courses are taught at all which is often not the case in primary and secondary schools. No wonder people's money management skills are often so poor.

Money Management: Of course, this is the main practical benefit of learning about economics. While the study of economics, in and of itself, will not make you wealthy, failing to learn and apply basic principles of saving and investing will surely keep you poor. Millions of people were raised to believe, and many still do believe, that investing is nothing more than gambling and no more reliable as a way to build wealth and financial security than buying lottery tickets. Still more believe that credit cards represent free money and have already spent their next raise without ever seeing the money. The study of economics is a good first step towards fixing some of these problems both in one's personal life and in our nation which also suffers from poor economic thinking and planning.

Value: The notion of value is important both in economics and life in general. Thomas Sowell points out that many people wrongly criticize economics by pointing out that there are also such things as "non-economic values," to which he responds by saying that of course there are non-economic values. In fact, there are only non-economic values. Economics is not a value itself but a way of determining the costs and benefits of trading one value for another.

Trade-Offs: The notion of trade-offs is a difficult one for many to accept. In a complex world we often want simple solutions but as often as not there are not solutions to problems at all, only trade-offs. We can spend more money on groceries only if we are willing to spend less on shoes. We drive safer by slowing down only if we are willing to spend more time on the road. Many areas of life involve such trade-offs and economics provides a clear method for thinking through how to make these trade-offs in the best way possible.

Planning: In *Basic Economics*, Thomas Sowell writes about his experience as an undergraduate in economics: "When I was an undergraduate studying economics under Professor Arthur Smithies of Harvard, he asked me in class one day what policy I favored on a particular issue of the times. Since I had strong feelings on that issue, I proceeded to answer him with enthusiasm, explaining what beneficial consequences I expected from the policy I advocated.

"And then what will happen" he asked.

The question caught me off guard. However, as I thought about it, it became clear that the situation I described would lead to other economic consequences, which I then began to consider and to spell out.

"And then what will happen after that?" Professor Smithies asked."

This continued for several more rounds until: "By now I was beginning to see that the economic reverberations of the policy I advocated were likely to be pretty disastrous and in fact, much worse than the initial situation that it was designed to improve."

The world is filled with such examples of the failure to think things through beyond the first stage. As the economist Bastiat pointed out, good economists see beyond the visible

consequences of their actions to the less visible and unintended consequences. While not immediately visible itself, this is one of the most important benefits of the study of economics.

The Importance of Ethics

The more I teach courses in ethics the more convinced I become that people are not being taught basic ethical principles at all; either in the home or at school. I say this not because people are behaving more unethically than ever before (although there is much of that going on) but because of how my students talk about ethics. They seem genuinely confused about what should be some very basic principles in ethics which, if taught, could have a positive impact.

The case for teaching ethics really comes down to what Aristotle said. The person who acts virtuously is simply happier in their life. Recent studies in psychology bear this out. People who lie, cheat, and steal are rarely if ever happy and people who are happy do not seem as tempted to lie, cheat, and steal. Aside from being happier here are a few other benefits to the study of ethics.

Empathy: A core principle in nearly every ethical theory taught in philosophy and nearly every moral code in human cultures is empathy. Having a genuine concern for others and being able to put yourself in their shoes is not only an important ethical principle but a useful life skill.

Virtue: This concept seems outdated but is an important part of most moral codes even if it is called something else. The basic idea here is that there are a core set of principles that it is good for one to have and act on such as honesty, friendship, contemplation. The last two were among the most important

for Aristotle and though not often thought of as ethical principles are important to a happy life. The point comes back to the one made above. Why should one know about ethics and act according to ethical principles? Because it leads to a happier life.

The study of ethics can also help answer some very basic but important questions about how the world works and that ethics has an objective and universal component:

What makes an action right or wrong?

Who decides what is right and wrong?

Does everyone have different morals?

There is much that we now know thanks to the study of evolutionary psychology about the answers to these questions. This information is quite interesting and useful. Ethics is something that should be taught starting at a young age but parents who are ill informed about the basic principles of ethics will have a harder time passing on useful knowledge to their children and providing answers to these important questions. If for no other reason than to benefit your children the study of ethics should be seen as an important priority in your education.

The Importance of Geology & Geography

For many people the study of geology is just about looking at rocks and the study of geography is nothing more than memorizing state capitals to be forgotten later on. While it is useful to be able to remember capitals and interesting to identify rocks, there are other reasons to study geology and geography.

We live in a world where information travels at the speed of light and what happens on the other side of the globe (both natural and political) effects us. And we all know the statistics regarding the poor knowledge young people have related to geography:

-Only 37% of young Americans can find Iraq on a map—though U.S. troops have been there since 2003.

-6 in 10 young Americans don't speak a foreign language fluently.

-20% of young Americans think Sudan is in Asia. (It's the largest country in Africa.)

-48% of young Americans believe the majority population in India is Muslim. (It's Hindu—by a landslide.)

-Half of young Americans can't find New York on a map.

This ignorance has profoundly negative consequences. But, I want to argue that there are bigger reasons for studying these sciences.

Perspective: Taking a wider perspective can be very useful and the study of geography encourages us to do this with regard to space. The study of geology reminds us to have perspective with regard to time. We often think that what happens in our little corner of the world at a particular time is all-important

but the world is much larger and time much longer than the framework in which we ordinarily conceive of things. Adopting a larger view of time and space can be useful.

Orientation: We need to orient ourselves both literally and figuratively in the world in which we live. As Jared Diamond points out in his book *Guns, Germs, and Steel*, much of our history turns on the contingencies of geology and geography. We inhabit a world of forces much larger than ourselves and these have a profound effect on our life and well-being. Thus, some understanding of these forces helps us to appreciate our history and our future.

Incremental Change: Throughout geological history, profound changes have occurred by the slow and deliberate processes of nature. Simple wind and water erosion formed the Grand Canyon. What can we learn from this? The power of small steps consistently taken yields large effects. This is abundantly true of nature and in our own lives. Slow and steady winds the race.

Personally, it took me some time to warm up to the study of geology. My sister was an avid amateur geologist and tried to spark the passion in me but it did not take hold until much later and even then in much weaker form. But, I hope to rectify that with my daughter and teach her to appreciate the natural world by instilling in her an understanding of the powerful processes at work in the natural world.

Knowing where you are going is not possible unless you know where you are and where you came from,. This is true of history which I will discuss in my next post but equally true of the sciences of geology and geography. For that reason, their study should be a part of any good education.

The Importance of History

On the 50th anniversary of D-Day I wrote an essay titled "IS D-Day Worth Remembering?" My hope was to provide an argument for the importance of learning history sufficiently motivating to cause students to act on it. I'm not sure I succeeded. But, the question is still valid to ask about any event of historical significance. If you feel some discomfort at the question this is likely because you recognize that the answer is yes, such events are worth remembering and it's unfortunate to have to provide an argument for this. If you don't think such historical events are worth remembering, please read on for more reasons to study history.

Orientation: As I noted in the essay on geology and geography, if you don't know where you are, you don't know where you're going. This is true of history as well. If you don't know where you came from, you can't know where you're going. History provides the context for where we each start our journey in life. Others have come before us and have literally set the stage for us. Failing to understand this impedes our ability to fully engage in life.

Experience: As Sir Isaac Newton once said "if I have seen further than most it is because I have stood on the shoulders of giants." This perfectly captures the importance of studying history no matter what your interests are. Every field of study and every human occupation has a history and has its giants. You can benefit from their experience and learn from their mistakes. You don't have to reinvent the wheel. Others have done it and it is easy to forget this without studying the past. We can literally benefit from the experience of those who came before us, even as we benefit from the experience of those who have been on the job longer than us at work. They know the ropes because they were there before us. History is nothing

more than the study of those who were there before us and know the ropes.

Commonality: We tend to think that people in the past were very different from us and superficially this is true. This is what causes some to dismiss the argument made above from experience. Those who lived in the past had different technology, different housing, they ate different food, wore different clothes. But, in the areas of life that really count, there is a strong bond of commonality which transcends time. People in the past had the same concerns about life, the same emotions of love and hate, the same ultimate questions and problems. Their solutions often differed but we can learn something of value by understanding their similarities as well as their differences.

Drama: To students who say history is boring I ask: Is life today boring? If you answer no, then remember this. What students in the future will study as history is your life today. What would you say to them if they said that their history was boring? In truth, history is the study of the drama of human life and that drama is no less interesting for having happened in the past than it is now. If you think history is boring this means you have not really been studying history but rather a school textbook version of history which bears little resemblance to the real thing.

Remembering: Finally, I want to argue that the act of remembering in and of itself is a sufficient reason to study history. If you have a relative who fought in a war, helped others in some way in their work, created something artistic, devoted themselves to public service, or was simply a good role model to their family, isn't this person worth remembering? Don't we dishonor them by not remembering? But, in a larger sense, everyone fits into one of the categories above. In a practical sense, we cannot truly remember every single person who has come before us. But, history provides us a way of

remembering even those whose names we no longer know. D-Day is worth remembering because it involved so many people just like you and me who made their contributions and lived their life without any thought of what future generations might think about them. They did their jobs, loved their families, made names for themselves (or not) and the very least we owe them is some act of remembering. Even if this involves nothing more than the study of history.

The Importance of Language

What I want to argue for here is not the importance of learning language. That should be obvious. Learning to speak a language is a virtual inevitability given the proper amount of exposure to language early in a child's life. What I want to argue for is that it is important to push beyond elementary proficiency to advance one's skills not only in spoken language, through a continually expanding vocabulary, but also in written language through the proper use of grammar, spelling, and the ability to write well in various contexts.

The practical benefits of these skills should be obvious as well but sadly even with so many benefits, these skills are sorely lacking and not often taught at all. The fashionable idea that teaching children proper grammar and spelling is continuing to do vastly more harm than good. And, it flies in the face of historical reality. We know that authors and poets as great as Dickens, Shakespeare, and many others were steeped in the rules of proper grammar without stifling their creativity. Rules of expression, in language as in art, don't stifle creativity but provide a meaningful context within which it can occur. Additionally, you cannot break the rules if you've never been taught the rules in the first place!

Communication: An obvious benefit of language is communication. But, the real benefits of this are better realized once one advances beyond the rudimentary forms of language use. An expanded vocabulary and advanced writing ability enhance the ability to communicate. There are subtle concepts as well as complex ones that simply cannot be expressed with barely grammatical middle school level language skills.

Many of my students complain that the texts they are required

to read in college are too complex and difficult to understand. But, this is more a reflection on their poor skills than it is the complexity of the text. What these students are really experiencing is the penalty of their poor education in such areas as vocabulary and grammar. Again, subtle and complex concepts require subtle and complex language to convey. To understand them, the reader must have comparable skills.

Expression: To appreciate the aesthetics of language also requires advanced skills. Like communication, the benefit here is twofold. First, there is the benefit of appreciating literature, poetry, and even philosophy and history. Second, there is the benefit of being able to be expressive. Conveying the wide range of human emotions so important to a well-lived life requires the kind of skills learning language provides.

Abstraction: Lastly, the ability to think abstractly is greatly enhanced by advanced language skills. Granted these skills would be unimportant if one never had to deal with abstract concepts but our entire life is affected by such concepts. Love, freedom, truth, and beauty are just a few of such concepts which have major importance in our lives. To think of such concepts requires a language skill that goes beyond the concrete.

The ability to speak and write well are often seen as indicators of underlying intelligence. Right or wrong, people will judge you by your language skills. For this reason as well as those listed above it is important to learn these skills early and practice them often.

The Importance of Literature

"Fictional characters behave according to the same psychological probabilities as real people. But the characters of fiction are found in exotic dilemmas that real people hardly encounter. Consequently, fiction provides us with the opportunity to ponder how people react in uncommon situations, and to deduce moral lessons, psychological principles, and philosophical insights from their behavior."
J.R. McCuen and A.C. Winkler

I first ran across this quote in an introductory logic textbook as an example of an argument. It is precisely the argument I want to advance here for the importance of studying literature. Like all art, literature in the form of novels, plays, and even poetry gives us a chance to rehearse scenarios and address ultimate life questions. We can work through moral dilemmas, grief, death, love, and other human emotions and dramas and find lessons to apply to everyday life.

Narrative: We often learn better by reading and telling stories than simply trying to learn facts out of context. This is why it is best to learn history as a narrative. Unfortunately, history textbooks do not read well as stories. With literature we have a ready-made vehicle to learn about the past in an entertaining and engaging way.

Ethics: One of the best ways to discuss ethics is to use real world examples and case studies. But, like history textbooks these can often be dry and not very engaging. They also force us to examine complex issues without appealing to the real world complexity and context of a given situation. Interestingly enough, good literature can provide this complexity and context even though the characters and situations described

are not real. With this context, we can use literature to examine problems in ethics and possible solutions to moral dilemmas.

Problem Solving: In a more general sense, literature provides us with a vehicle for exercising problem solving skills. Even though fictional characters do end up in "exotic dilemmas," they are often not entirely dissimilar from our own dilemmas and though I am not arguing that we ought to do as fictional characters do, we can often learn something by the insights that can be gained in the study of literature. Even if we learn what not to do this can be a valuable lesson.

Role Models: Literature provides us with a wide array of characters to study and many of these can be used as good role models. Like real people, fictional characters (at least those in good literature) are often flawed but this allows us to explore the full complexity of humanity as we decide which role models to emulate and which to avoid. Even the best real life heroes have traits we ought to avoid.

Students often ask why they are required to study past works of fiction that seem irrelevant to their life today. But, the best works of literature are still read and studied precisely because they contain characters and lessons that are timeless. Reading only recent and obviously relevant works denies us the opportunity to learn from a wide range of sources and limits our scope to only what we can see immediately before us. But, the world is a much larger place, both geographically and historically. Literature provides an entertaining way to learn this lesson and can be a window onto many other important subjects in the curriculum. It can also show us how these subjects connect and influence life. With all of these benefits it is well worth studying the great works of literature.

The Importance of Mathematics

While it's relatively easy to argue for the importance of studying mathematics, it is unfortunate to have to. But, the fact remains that in some cases a majority of college students enter their freshman year needing some remedial mathematics courses. This clearly indicates that they are not getting a good math education in high school and probably also means they are not being shown the importance of learning math. This is more unfortunate as the job market continues to develop more and more jobs where math skills are in demand. Even in the information age, where information is usually taken to mean verbal or written communication, mathematics still ranks as an important skill set.

Everyday Use: The most obvious argument for studying math is the many everyday uses. Calculating percentages, balancing a checkbook, calculating area are just a few skills everyone needs virtually every day of their lives. Unfortunately, such applied math skills are sorely lacking even in students with good grades in high school math courses. The philosopher and mathematician Pythagoras recognized that numbers are an integral part of every life and that has never been more true than today.

Numeracy: One of the most important aspects of studying math is gaining what mathematician John Allen Paulos calls numeracy, defined as a general familiarity with numbers or having a good sense of numbers. This is quite different than being skilled in everyday uses of math though the two are connected. Being numerate involves such skills as estimation and a firm grasp of statistical principles and how to apply them. Being numerate also involves being able to see the connections between numbers and aspects of life not immediately obvious and not often taught in math classes.

What does the population of a city tell you about how many ethnic restaurants there are or the chances of finding a good used bookstore?

Universality: In many areas of life people tend to be relativists in spite of the many problems with this view especially in the realm of ethics. But, the study of mathematics can be a good antidote to this relativism as it shows that there are certain universal principles which govern how the world works and how we can understand it which are independent of culture or opinion. There is no such thing as Chinese mathematics which differs from European mathematics. The same principles apply wherever you happen to live.

Foundations: Perhaps for reasons connected with the points made above about universal rules, Plato advised that before studying philosophy and ethics students in his Academy first master the principles of mathematics and geometry. Pythagoras believed that everything consisted of numbers and to the extent that we can quantify a wide range of phenomena both physical and social this is true. Mathematics is the foundation of physics, chemistry, and most other hard sciences. Through the use of statistics it can also be seen as an integral part of such soft sciences as sociology and economics. To fully understand the principles of these disciplines requires a good working knowledge of mathematics.

More than any other area in the curriculum, with the possible exception of history, how math is taught has led to the problem of mathematical illiteracy. Unless we begin teaching mathematics with an eye towards helping students master everyday use and gain numeracy as well as see the connections and foundations of math in other disciplines we will continue to struggle in a world more driven by math than ever. Ultimately, students will grow into adults who see first-hand the costs of this illiteracy in their shrinking income, investments, and

savings. Perhaps those numbers will motivate the drive towards improved math literacy!

The Importance of Music

Among the first subjects to be cut in school budgets are art and music. These cuts are often based on the belief that these subjects can be sacrificed without much damage to a student's development or academic success. But, more and more research shows that this is not the case. While the Mozart Effect, claiming an increase in IQ points when children are exposed to classical music, has been largely debunked, there are still good reasons to study music. Let's consider some of these.

Applied Academics: One benefit is that music is a great way to show a fun application of other academic subjects such as mathematics, physics, history, and geography. Given the general interest in music that most children have, it can be used as a window into other subjects that are not as immediately interesting for students.

Cognitive Benefits: While the Mozart Effect may not be reliable, there are tangible cognitive developmental benefits to studying music. Surely one of these is an increase in creativity. Other benefits include an increase in attention span and quantitative ability. Music does activate various parts of the brain and this increased activity has positive benefits. Music rewards close attention to detail, form, structure, and organization all of which are beneficial in many other areas of life.

Rhythm: An important part of music is the element of rhythm and many children relate to music very physically through dance, clapping, singing, and humming. Focusing on the rhythm of music can improve a child's general physical coordination and practicing a musical instrument can improve more specific coordination and dexterity.

Harmony: A second component of music is harmony and here the benefits of studying music are both literal and metaphorical. The study of harmony develops the ability to hear and discriminate among various tones and intervals and can lead to an appreciation of a wider range of musical styles. Metaphorically the study of harmony can be used as a means of teaching the benefit of harmony in general in how we relate to others. Such virtues as sharing and cooperation can be introduced through the musical element of harmony.

Melody: Built on the foundation of rhythm and harmony is the element of melody. Again, the benefits of study here are both literal and metaphorical. Since music has long been used as an aid to memory and a means of improving memory, the study of melody can be beneficial. The study of increasingly complex melodies can lead to an improvement of memory for more complex ideas as well. Metaphorically, the study of melody introduces the idea of individuality. Like musical pieces, everyone has their own individual melody which develops over time.

Just a consideration of the basic elements of music can illustrate several important benefits to studying music. Studying specific genres can yield other benefits. Jazz is important to the study and ability of improvisation. The blues illustrates emotional expression. Classical music reveals organization and precision. At the same time, music also shows the universal nature of such values as every genre contains these elements as well as the basics of rhythm, harmony, and melody. The rewards of studying and enjoying music extend far

beyond the simple act of listening and playing. As important as these are, the applied benefits are also well worth examining.

The Importance of Philosophy

For most people philosophy is an unfamiliar subject to begin with so to argue that it is useful in everyday life might seem like a difficult proposition. Yet, with the growth of applied philosophy and the practice of philosophical counseling, philosophy has taken on a new sense of importance. In truth, philosophy has always been important. As Epicurus pointed out "Vain is the word of a philosopher which does not heal any suffering. For just as there is no profit in medicine if it does not expel the diseases of the body, so there is no profit in philosophy either, if it does not expel the suffering of the mind."

Therapy for the Sane: Lou Marinoff has called the practice of philosophy "therapy for the sane." This is a good description of the recent philosophical counseling movement but as the Epicurus quote illustrates philosophers have always been concerned with improving life and relieving suffering. It is only recent movements such as analytic philosophy which have moved away from this tradition. Philosophy invites us to reflect on how we can lead a happy and meaningful life. It also provides an opportunity to address life's ultimate questions involving suffering and death and in the best sense of the word is, indeed therapy understood as care of the soul.

Power of Ideas: Philosophy is really about the study of ideas and their power in our lives. Alfred Adler once said "A person's behavior springs from his ideas." So, the study of ideas is important not only to understand the actions of others but

ourselves. Our life is ultimately guided by many ideas such as truth, beauty, justice, meaning, and good to name just a few. A systematic study of these can lead to a greater understanding of some of the most important aspects of our life.

Meaning: The question for meaning is one of the most important aspects of anyone's life and the psychiatrist Viktor Frankl recognized that a large amount of psychological suffering results from the failure to find meaning. His approach to therapy called Logotherapy is premised on the idea that finding meaning is an important key to mental health. Philosophy provides a method for examining our life and the attempt to find meaning.

The study of philosophy is often seen as an abstract exercise with very little relevance to everyday life and the problems real people encounter. But, the best of philosophy provides just the kinds of insights one needs to address life's ultimate questions and help find meaning and purpose in life. Furthermore, we are influenced each and everyday by a world of ideas. Studying them in an effort to understand them and their effect on us is a worthy and important pursuit.

The Importance of Physics

The scientist J.B.S. Haldane once said "My own suspicion is that the Universe is not only queerer than we suppose, but queerer than we can suppose." This is the daunting prospect facing anyone who tries to understand how the world works and where everything came from. But, this is precisely what physics attempts to do and with the advances made in relativity and quantum mechanics we have made progress. Yes, there are still unanswered questions but as strange as the implications of relativity and quantum mechanics are their accuracy so far tells us that they are good explanations as far as they go. But, the question remains. If the universe is "queerer than we can suppose," is there any point or benefit in studying the science that studies the universe? Let's look at some possible benefits.

Appearance/Reality: An important distinction made by early philosophers and scientists still holds true and is a useful one to remember in everyday life. There is a difference between appearance and reality. In other words, things are not always what they seem. Physical objects appear to be solid yet we know the reality is that they are composed of very tiny particles which themselves are in constant motion and which consist of largely empty space. Many of our common sense intuitions about how the world works are based on appearances and are wrong. We would do well to remember that to truly understand anything it is important to look below the surface to the reality underneath.

Wonder: The practical benefit of our everyday perspective allows us to get on with the business of living without having to deal with the realities that physics describes. As Richard Dawkins points out, we have evolved to live in a middle world between the immensely large objects in the universe such as

galaxies and the vanishingly small objects in the world such as electrons and quarks. Our minds are not innately tuned to observe these levels or to comprehend them without great effort. But, as a result of being evolved to live in this middle world we can lose some of the sense of wonder that comes from a study of the large and the small. Physics helps us regain this important feeling of wonder.

Connections: Physics also shows that everything is ultimately connected in many surprising ways. If you contemplate how the universe of the large looks from the perspective of galaxies and groups of galaxies you quickly see that there is no way to distinguish individual people here on earth. Likewise, if you contemplate the universe of the small from the perspective of an electron or a quark you also recognize that there is no way to distinguish individuals. This shift in perspective from the everyday to the physics based perspective reveals a world more connected than we usually consider. Appreciating that is an important insight and one which has many uses in everyday life.

Of course, there are also many very tangibly practical benefits to studying physics in a world based on the flow of digital information and technology. None of this would be possible without the advances made in physics. While we may not contemplate the queerness of the universe on a daily basis we do live with the results of our knowledge of this queer universe. The power of these results will continue to grow over the next few decades and an understanding of the forces behind these advances in technology will be invaluable.

The Importance of Politics

At any given time in history it is relatively easy to find politicians who have fallen out of favor with the people they are charged with representing or leading. In the United States congressional disapproval seems higher than ever. Many people instinctively distrust politicians and many otherwise well qualified people are put off pursuing public service entirely once they observe what those who seek elected office must endure to win an election. Given all of this can there be any good benefits to the study of politics? Since the essence of politics is the act of coming together in civil society to solve the problems in that society it seems that there certainly practical benefits to the study of this much maligned subject.

Cooperation: An important element of politics is the act of cooperation. This can be difficult at times when the parties involved disagree on fundamental issues of principle. But, there are some things that cannot be accomplished alone and we must work together to get them done. How this cooperation gets organized is a central focus of politics.

Compromise: What makes politics so frustrating is the need for compromise. But, when people differ on basic principles and ideals getting things done requires compromise. Rather than look on this necessity as a flaw of politics we should look on it as an indication of our liberty. Compromise is rarely needed in societies ruled by dictators since they can demand conformity and impose their will without consulting others. The moment we bring other people into the process we introduce the need to compromise. This is an indispensable feature of a free society.

Problem Solving: Of course, the goal of coming together to cooperate and compromise is to solve problems. As a method of problem solving, politics seems impractical and inefficient. But, again we must remember that with liberty comes the ability to disagree and this means that we cannot use the power of politics to impose our will on others. As the Framers of our government recognized, our government is ultimately based on the consent of the governed. The solutions we arrive at for our problems are also ultimately based on this same consent.

A truly informed electorate is necessary to make our political system work at its best and this includes a working knowledge of the system we have. The direct benefits of this come from being better informed voters. But, as with the other subjects we have examined there are also indirect benefits to the study of politics. Our national politics is just a macrocosm of our daily lives where the same need to cooperate, compromise, and solve problems exists. Recognizing this will benefit both realms of life and give us a greater appreciation for the importance of politics.

The Important of Psychology

With the growth of the self-help movement has come a growing interest in and knowledge of psychology. Given this, it would seem obvious that there are benefits to the study of psychology. But, let's look beyond the obvious benefits to see if there are other aspects of psychology that can give us useful insights.

Self-Help: Clearly the ability to work through one's own emotional difficulties is a useful benefit to the study of psychology. The insights available from the study of psychology are particularly useful in sorting through the various approaches to find one that is most compatible with each individual's needs.

Self-Knowledge: With the rise of self-help has also come the potential to increase one's self knowledge. Indeed, a good knowledge of the self is critical to the successful use of most self-help techniques. Psychology encourages the kind of reflection that one needs in order to gain a better sense of self.

Reason and Feeling: An important benefit to the study of psychology is the recognition of the distinction between reason and feeling in thinking. While the two function together there is an important difference in their role in thinking. How they are understood separately and how they work together are both often misunderstood and the study of psychology helps to clarify these questions.

Metaphysics: At the root of every approach in psychology is a set of presumptions about how the mind works and how it is related to the brain. Too often this important aspect of the subject is ignored and consequently many people misunderstand the role of the brain in our thinking. While

psychology has advanced well beyond the insights of the 17th century philosopher Rene Descartes, many people still have a basically Cartesian dualist view of the mind and the brain. But, there is much that we now know about this subject that is both interesting and useful.

At its most fundamental psychology is the study of the mind and how it works. Given the central importance of thinking and information processing in our world today the benefits of studying psychology are numerous. Given that much of what we think about how we think is wrong the study of psychology is also necessary to correct some of these mistaken intuitions. It is perhaps these less obvious benefits which are the most valuable insights we can gain from the study of psychology.

The Importance of Religion

There are more people who profess a given religion than there are people who actively practice that religion and it also seems to be the case that there are fewer people who have a working knowledge of religion (both their own and others) than there are people who actively practice a religion. In fact, some studies show that the less religious a person is the more knowledgeable they are about religion in general. But, for those who practice a religion are there any benefits to the study of their own religion? Are there any good reasons to study other religions at all? Let's examine these questions.

Tolerance: Many people believe without question that their religion is the correct one and all others are mistaken in important ways. If nothing else the study of religion can foster tolerance towards other beliefs and the people who profess them. In a world with more and more religions being formed all the time this is an important benefit to religious and non-religious people.

Moderation: As Charles Kimball pointed out in his book titled *When Religion Becomes Evil*, problems occur when religious believers take their views as the only right ones and become more extreme in their practice of religion. We have only to look at the events of 9/11 to understand this. But, the study of religion can lead to more moderation in the practice of religion and as a result it becomes less likely that dangerous consequences arise from the practice of religion.

Secularism: While this point is controversial, ultimately the benefit of studying religion as an academic subject is to foster more, not less, secularism. Indeed, studies show that the more people know about religion (their own and others) the less

likely they are to actively practice any religion. In other words, the more likely they are to be agnostic or atheist.

Unlike the other subjects examined in this series, the argument I am making here is that the study of the subject leads to less active application of the subject and this is a benefit. But, this is also what makes many people reluctant to take on a serious study of religion. They intuitively recognize that once they learn about other religions and the details of their own, their belief will seem less plausible and they may end up giving it up entirely. But, is this such a bad thing? Certainly one can hold fast to a sense of spirituality without holding onto certain beliefs about how the world works that are largely outdated and incorrect. Certainly one can find meaning and purpose in life and live according to a set of ethical principles without appealing to a set of metaphysical presumptions that are largely at odds with what we know about how the world works.

As Carl Sagan pointed out: In some respects, science has far surpassed religion in delivering awe. How is it that hardly any major religion has looked at science and concluded, “This is better than we thought! The Universe is much bigger than our prophets said, grander, more subtle, more elegant. God must be even greater than we dreamed!”? Instead they say, “No, no, no! My god is a little god, and I want him to stay that way.” A religion, old or new, that stressed the magnificence of the Universe as revealed by modern science might be able to draw forth reserves of reverence and awe hardly tapped by the conventional faiths.