THE ASYMMETRIC LEARNING TRAIT

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Abstract

A paired human learning trait is described as "symmetric" if

● It describes an aspect of human learning efficacy

● It has two opposite components and

● It is equally effective with respect to those opposites.

If it is substantially different in effectiveness with respect to those opposites, it is described as "asymmetric". Hence the terms "symmetric" and "asymmetric" refer to learning efficacy with respect to the two components of the paired learning trait.

Higher education has long been animated by an overriding goal of developing individuals with a talent for critical thinking; i.e., analysis. This goal undoubtedly was set without regard for the nature of the opposite component of the paired human learning trait; i.e., synthesis or design. The opposites of concern here are analysis and synthesis. The principal educational consequence of devoting virtually all resources to developing critical thinking is to fail to develop as a collateral outcome the other component of the asymmetric learning trait. What should be sought, in the interest of developing a balanced human persona is a symmetric learning trait, equally balanced between analysis and synthesis.

Until that is achieved, the educational system will continue to develop future politicians and public intellectuals who operate under the illusion that they possess synthesis skills in equal proportion to their analysis skills, when no belief could be much further from the truth. The principal political consequences of failure to seek the symmetric learning trait are the promotion and foisting of dysfunctional systems upon a defenseless public.

Introduction

The Overriding Goal. It is well-known both inside and outside educational circles that educational systems are organized much like other kinds of organizations, in that they self-organize into narrow areas for the purpose of providing and/or applying specialized knowledge. The officially stated goal of the educational bureaucracy in higher education is to develop students who are capable of critical thinking. By this is meant that the student is capable of first learning about a situation and then picking it apart to determine where its weaknesses and associated inadequate reasoning lies, in order to be able to articulate its flaws. In a word, it is to develop a talent for *analysis*.

In this way, it is inaccurately or at least implicitly presumed that the individual is able to take local actions to correct those flaws, or to propose regional projects to correct them, or even to initiate national efforts on larger scales. Or it is likewise presumed that the thought leader, e.g., the columnist, is able to guide public decision-making in the right direction concerning decisions on choices of future leaders. In a word, it is (incorrectly) presumed that one who can analyze, necessarily possesses the talent for *synthesis*.

A Three-Stage Capability. As just stated, to be satisfied the Overriding Goal appears to require that the student acquire a three-stage talent:

● **Talent 1.** In the first stage to learn about the status of a situation,

● **Talent 2.** In the second stage to apply the critical facility to assess the flaws in the situation and, implicitly,

● **Talent 3.** In a third stage to conceptualize a means for resolving the flaws in the situation.

Unfortunately, the bureaucracy seems never quite to reach the point of exhibiting the consequences of exercising Talent 3; but merely seems content to assert that it is possessed and will ultimately be applied at

the proper point in time.

Symmetric Learning Trait. One may verify that it is normally equally easy to learn to smile and to frown. Likewise it is normally equally easy to learn to close and open the eyes. These operations represent two examples of opposites which appear to be equally easy to learn. Because the individual finds them equally easy to learn, the individual exhibits a "symmetric learning trait" with respect to these particular opposites.

A question which might arise is this: If an individual has a symmetric learning trait with respect to some set of opposites, would the individual have a symmetric learning trait with respect to *all* opposites?

If an individual has a symmetric learning trait with respect to *many* opposites, might an individual mistakenly tend to assume that the individual has a symmetric learning trait with respect to *all* opposites?

Asymmetric Learning Trait. The capability to analyze and the capability to synthesize can be vastly different in terms of requirements. Consider for a moment that the individual gets into an automobile and starts to drive down the street. Abruptly the car stops and refuses to continue. The driver notices that the gas gauge shows "E". The diagnosis is "ran out of gas". The driver has exhibited Stage 1, to learn about the situation. Next the driver will apply Stage 2, to apply the critical facility to assess the flaw, and soon will use a cell phone, placing a call to have a gallon of gasoline delivered to place in the tank, thus resolving the situation. The three-stage talent has been demonstrated.

But suppose the situation is not quite so simple. Large investment houses have marked to unsuspecting banks something they have never seen before called "credit default swaps". Management of these large houses report that everything is fine. Abruptly the world economic system starts to deteriorate. Large banks start to fail. Governments hold meetings and announce that they are not quite sure what to do. Mammoth bailouts are proposed. The public is outraged.

National economies seem on the brink of depression. Virtually everyone understands that there is a significant situation to be dealt with. But no one knows what to do. Politicians argue about possible actions while matters get worse. It is easy to see things that are wrong. It is virtually impossible to synthesize a system that corrects the situation. Every politician seems sure that others were at fault.

There exist situations where ***an analysis readily reveals difficulties and flaws***, but where the individual lacks any capability to arrive at a resolution (but may speak of "addressing" the situation). Such situations involve an "asymmetric learning trait".

Imbalance in Higher Education. *There is no provision of any significance in higher education to balance the acquisition of symmetric and asymmetric learning traits.*

The Turn Toward Set Theory

The nature of synthesis clearly involves, at minimum, aggregation of entities. Beyond that elementary beginning, the next step involves the interrelation among the members of the aggregated entities. If the human mind were organized to perform like an accounting device or a computerized data base, resort to some form of mathematical assistance would probably be unnecessary in carrying out such operations. The mind is not so organized.

But since there exists an already well-formed branch of mathematics known as set theory which provides a notation and a set of operations wonderfully constructed to enable a direct matching with the operations of aggregation of entities and portrayal of relationships among those entities, ***there is every reason to take advantage of this branch of mathematics, to provide the basis for implementing the synthesis component of the symmetric learning trait.***

Moreover the relevant mathematics is aggregated (Warfield, 2003) in a format that provides appropriate notation, suitable for application in the most intricate situations, with already-formed and already-tested software to facilitate the development and portrayal of the relationships among entities, once those entities have been discovered and described (Warfield, 2004). Moreover, the individual does not have to learn this mathematics. A process has devised that only asks the individual to furnish expertise unique to the individual, and to learn from others. Is this too much to ask as a substitute for behaving in the usual ineffective way?

Systems Science: The Context for Set Theory

The set theory, as just described, has been placed in the larger context of systems science (Warfield, 2006) which, itself, has been structured in a learning mode that is directly applicable to cooperative group learning. This means that the burden for development of symmetric learning trait need not be (though it can be) placed on the individual, but can be placed on a group whose members collaborate in developing the set of issues that is required in order to most fully provide the critique necessary to describe the problematic situation under discussion.

Because the systems science, as developed, is discipline- or situation-independent, it can be applied indiscriminately across the board in higher education and in the public or private arena as well. The type of facility required for those problematic issues of an economics curriculum can be the same as those for a business curriculum or a public policy curriculum, implying substantial savings in design, construction, and maintenance for the institution of higher education. Such savings can conceivably even extend to course offerings, at least in part.

Some Possible Benefits of Developing the Symmetric Learning Trait

If the symmetric learning trait were fully developed, the most obvious benefits would be found in the leadership

functions in large organizations–both government and industry–in those problematic situations that have come to the fore in recent decades. In the governmental realm, these are the situations most discussed by political candidates who run for national office: presidential candidates and candidates for congress.

These candidates present an image of owning the symmetric learning trait. They speak of how, once in office, they would resolve those problematic situations that have been at the fore of public policy for decades. Yet, when they assume office, as we have seen, it matters little to which party they owe allegiance. What occurs is a continued wrangling, that leads to little progress or perhaps even backsliding.

The diagnosis is this: the symmetric learning trait is not available to any of these candidates. Instead they all possess an asymmetric learning trait that is a consequence both of their education and of their subsequent experience. If they are ever going to be able to make significant progress in what are essentially system design situations, it will be necessary to take advantage of already-developed systems science.

Systems science offers a means of providing scientifically the missing component: the synthesis component to round out the other side that is absent from the cognitive apparatus of the human beings who are striving to grapple with the complexity that accompanies today's issues. Systems science incorporates processes that take full advantage of the accumulated knowledge and experience of groups of individuals, and makes possible the aggregated and integrated judgment into implemented packages of work.

The processes that are made available have been tested for almost 3 decades, and a strong and vast literature is available which enables the material to be learned.

In light of this, what should be done in higher education to develop the symmetric learning trait?

The Longer Term Plan

Over the longer term, guidance for higher education is provided in a paper (Warfield 2008). Individuals who have recognized the significance of this concept are identified in the Appendix to this paper.

The Shorter Term Plans

In the short run, individual issues can be dealt with if those components of the power structure are willing to establish working groups and draw down on the very limited talent that presently is found at different places around the world (Exhibits 4-6 in the Appendix to this paper) to carry out the design functions required to implement resolving designs.

References

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Appendix

Internet URL: http://policy.gmu.edu/res/jwarfield/