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### **Keynote Speaker**

## **SYSTEMIC APPROACH (SA) TO CURRICULUM DEVELOPMENT (IMPLICATION AND APPLICATION OF SYSTEMS THINKING TO CURRICULUM DEVELOPMENT)**

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### **Abstract**

*This paper will address the application of systemic approach to curriculum development. This approach is inspired by systems or systemic thinking which is holistic-comprehensive in nature as opposed to taxonomic thinking which is partial-fragmentary. Systemic thinking considers this world as a system: education is a system; curriculum and curriculum development are sub-systems of education. Every system has its own elements; all elements in the system are equally important and together will determine the success of a system to achieve its goal. The success of a system is determined by the intersection, interrelation, and interaction of all its elements. The failure of language teaching to meet its goal might be because it is based on a curriculum which is not systemically developed; some elements are not considered or involved. Therefore, the application of systemic approach to curriculum development might be an alternative solution.*

**Keywords:** *Systemic, holistic, curriculum development.*

*Systems thinking have been applied to various field of inquiry, from education to defense, as well as from deciding high way construction to selecting a husband*

(Reuben, 1972, in Suryasumantri, 1981)

### **RATIONAL**

The low quality of education has, so far, been a burning issue and public concern in some countries, especially Indonesia. Curriculum is frequently assumed to be the scapegoat of the problem. As a result, almost every time the ruling government changes, it is followed by curriculum change. In other words, different administration and/or different minister will result in different educational policy. This frequent change has raised public uncertainty and inconsistency of the national policy of educational development orientation which is felt as if it is (were) a trial and error policy. It is just like growing a plant and without waiting for the plant to fructify, it is, again, substituted with another plant. Of course it is not wise to blame only curriculum for the reason of educational failure. Since, curriculum is only a subsystem of Education as a bigger system. In my

mind, in my observation and experience, or even in my belief the failure of education (whatever it is) to reach its goal is due to the absence of systemic planning (the application of systems thinking to planning) or due to the authority, so far, of taxonomic planning (application of taxonomic thinking to planning).

The above considerations have triggered the writer to introduce Systemic Approach to Curriculum Development. This is not a scientific claim; this is only a personal insight to be logically tested or propositional statement to be empirically verified.

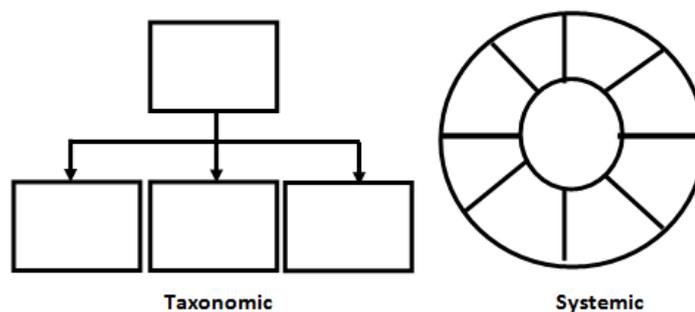
### **Systems Thinking**

Systemic approach is inspired by the concept of systems thinking. So, to understand what systemic approach is, we, first of all, must understand the concept of systems thinking. Then, what are systems thinking? "Systems thinking is a holistic approach to analysis that focus on the way that a systems constituent parts intersect, interrelate, interact and how systems work overtime within the context of larger systems (Akil, 2013, p. 3). The following illustration might help for a better understanding. Supposed you are asked to answer the question, "One straight line + another one straight line = ?" Your answer might be one of the following.

- |        |          |
|--------|----------|
| 1. //  | 2.       |
| 3. \\  | 4. ==    |
| 5. — — | 6. — — — |
| 7. <   | 8. >     |
| 9. ∨   | 10. +    |

**Figure 1.** Indicators of Taxonomic and Systemic Thinking.

If you choose any number from no. 1 through no. 9, it is an indicator of taxonomic thinker (partial-fragmentary); if you choose no. 10, it is an indicator of systemic thinker (total-holistic) this means that every/all aspects of a thing (a system) is considered vertically, horizontally, and diagonally. All elements are equally important (determinants); they intersect, interrelate, and interact with one another. To better illustrate the difference between taxonomic and systemic thinking, both are visualized underneath.



**Figure 2.** Comparison between Taxonomic and Systemic Thinking.

### **Curriculum as a System**

When asked, "What is there in the world? Quine (1961, in Suryasumantri, 1981) answered "There is a system". Everything in this world is a system. This implies that curriculum is also a system and curriculum design or development is not an exception. This statement also implies that every existence (system) in this world relates to other existences (systems) in orderly way as elements of the supra system (this world). Every system has its own elements which intersect, interrelate and

interact to one another. The success of a system to achieve its goal is determined by the intersection, interrelation and interaction of its elements.

Curriculum and Curriculum Development as a system consists of many elements, the involvement of elements varies according to different curriculum designers or developers. Prior to discussing curriculum and curriculum development, we need to share understanding on what we mean by curriculum and curriculum development. In this context curriculum is understood as a general overall plan of the content or specific materials of instruction that the school/educational institutions should offer the students by way of qualifying him for graduation or certification. Commonly a curriculum as a system consists of four main elements, namely: Objectives; Courses or Materials, Methods, and Evaluation. While, curriculum development is understood as the process of improving the curriculum, might be in the form of designing or redesigning through certain steps agreed by the parties or curriculum developer involved in that project or work. For examples, Taba (1962, in Print, 1993) listed seven steps, namely: diagnosis of needs; formulation of objectives; selection of content, organization of content; selection of learning experiences; and determination of what to evaluate and ways and means of doing it. Wheeler (1967, in Print, 1993) listed five steps, namely: Aims, Goals, and Objectives; selection of learning experiences; selection of content; organization and integration of learning experiences and content; and Evaluation. Nichools (1978, in Print, 1993) listed five steps, namely: Selection of Objectives; Selection and organization of Content; Selection and Organization of Methods; Evaluation; and Situation Analysis. Nation and Macalister (2010) listed eight steps, namely: Environment Analysis, Need Analysis; Application of Principles; Goals; Content and Sequencing; Format and Presentation; Monitoring and Assessment; and Evaluation.

In fact, no matter how many elements in the curriculum and how many steps are there in the development components, the matter is how widely and how deeply the elements and steps are analyzed or treated. Are they holistically covered, meaning that all or most elements are identified and involved as determining elements? And, are they systemically considered, meaning that all identified or involved elements intersect, interrelate, and interact? These questions should always be considered and answered by curriculum developers/designers. Only by so doing, the expectation of any nation to meet its planned quality standards of education can come true.

### **Systemic Approach to Curriculum Development**

There are five important key words feature this approach, namely: *holistic, systemic, intersection, interrelation, and interaction*. Holistic means all elements of a system should be identified and given the same credit of importance. Systemic means all elements of the system should intersect, interrelate, and interact one another, if any element miss any of these systemic features, the element should be excluded from the system. Otherwise, it will jeopardize the system. The absence of any of these five absolute features will ruin the system. Below the ways this approach works are illustrated, starting from INPUT in which all elements of the CD are listed through five steps (identification, elaboration, classification, gradation, and portion), THROUGHPUT/PROCESS in which the hypothetical CD is verified through 6 steps (validation, field testing, monitoring, reflection, revision, and, refining), OUTPUT is the product of CD developing process or developed CD which is ready for distribution/dissemination. And, this must be followed by periodical evaluation to anticipate the ever changing demands and global changes. All activities and decision making in this context shall involve all interested parties. As an example, in selecting curriculum contents it is necessary to involve: stake holders, teachers, learning theorist, curriculum experts, curriculum developers, syllabus writer, government, students, parents, learning institutions, society, and other interested parties, or all parties that will experience the effect and impact of education either directly or indirectly by combining both emic and ethic perspective, not only prescriptive but also descriptive-reflective. For a better illustration, hypothetical model of Curriculum Development is given underneath.

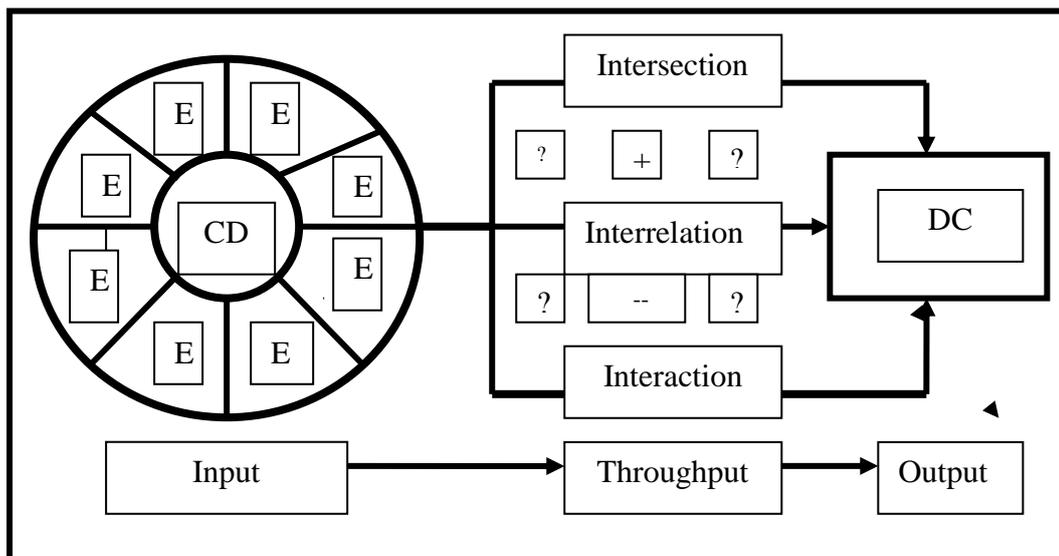


Figure 3. Hypothetical Model of Systemic Curriculum Development (Akil, 2013).

### CONCLUDING REMARKS

So far, the quality of education, many claim never meet our expectation, and one of the most frequently accused to be the scapegoat is the curriculum. The case of Indonesia is a good example. The implementation of curriculum 2006, popularly called KTSP had not yet proved itself to be good or bad, another curriculum, curriculum 2013 came to substitute for it. And, Ironically, the implementation of the curriculum was disqualified or, in more moderate word, cancelled by the new ruling government just after being implemented for no more than one year.

The fact above might have happened because the curriculum adopted, so far was not properly developed. It was ethic in perspective (did not involve all the interested parties). It was locally oriented, not globally. It was taxonomically formulated, not systemically. Critical elements were partially covered, not holistically. To solve the problem, Systemic Approach to Curriculum Development illustrated above, might be an alternative solution.

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