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Instruction Manual of Systemic Approach to Teaching and Learning (SATL)

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ABSTRACT
In order to have better understanding of scheming of lectures via Systemic Approach to Teaching and Learning (SATL) method examples of daily life have been selected. In this practice different thoughts are arranged in a way that the correlations between a variety of concepts becomes explicable.

Keywords: Systemic approach, teaching method, effective learning, lecture designing

1. INTRODUCTION
Linear approach of teaching, which is in vogue throughout the world at the moment, is based upon step by step transfer of information to students, who are subsequently expected to link the various segments of knowledge on their own. This approach encourages rote learning, hinders creativity and is thus not advisable any more. On the other hand, recently introduced Systemic Approach to Teaching and Learning (SATL) methodology is a holistic in essence and encompasses delivery of facts, concepts and skills in one package. Consequently, a web of knowledge is constructed. Teaching community across the globe is gradually responding to this recently introduced technique. This mode of teaching is increasingly getting appreciation and generating enthusiasm among the world academia. Being a new mode of teaching, sufficient books and lessons, are not freely available for this methodology.

Nevertheless, those who get involved in the mental exercise of promoting this mode of learning, start enjoying it. Teaching is carried out through communication. Learning process becomes pleasant if better communication skills of teacher; prevail upon the inherent inertia, associated with the students, while they focus upon a difficult subject. SATLC technique is a better instrument for making the teacher's job easier, as it amply enhances the communication skills of the teacher.

2. METHODOLOGY
Any teacher who wishes to join this caravan of knowledge will be able to facilitate by building teaching units and undertake unified effort involving numerous steps detailed below:

1. **Enlist your aims and the operational objectives of concerning lesson such that systemic aims are clearly addressed**

For example aim of the lesson is to introduce a person.

2. **Identify the perquisite for teaching the desired lesson from previous study**

Further to that salient features of the lesson that incorporate facts, concepts, laws, interrelationships and subsequent skills, to be accrued from the teaching and learning exercise, are to be underlined and elaborated

Students will be able to recognize the person, from different aspects of his personality. We need addressing the following issues.

- Achievements
- Qualification
- Field of interest
- Personality
- Nature of job
- Responsibilities etc.

3. **Develop a diagram which demonstrates linear connections between the concepts already outlined above**

The diagram that develops for projecting the person, on the basis of these undertakings is reproduced below

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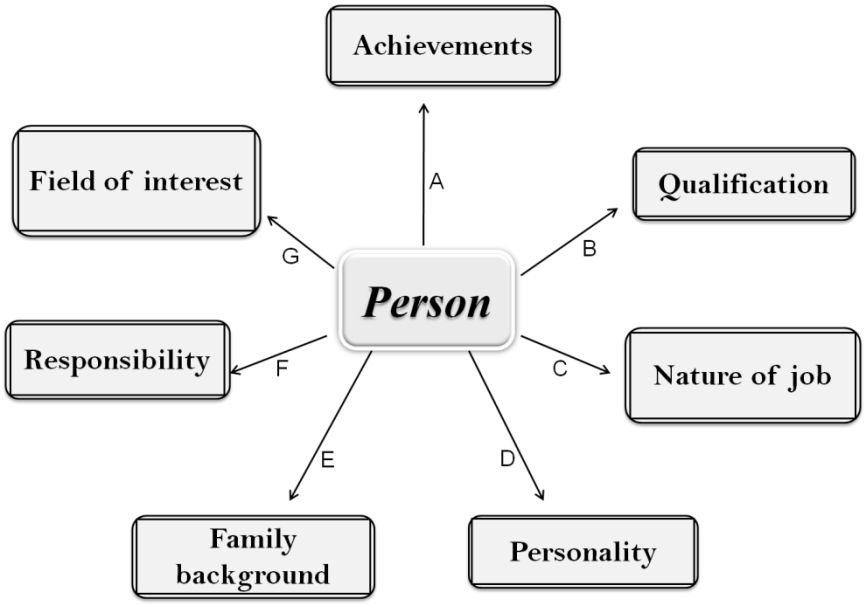

Fig-1: Illustration of linear connections between important concepts

This diagram describes the basic concepts pertaining to the lesson with its relevant information. Here, it is to be noticed that the above connections are linear and independent from each other.

4. **Mark the already known connections, from previous knowledge, with tick sign (√). Then identify the remaining connections which are unknown by putting question mark sign (?) on the connectivity line**

The modified diagram is shown in Fig-2.

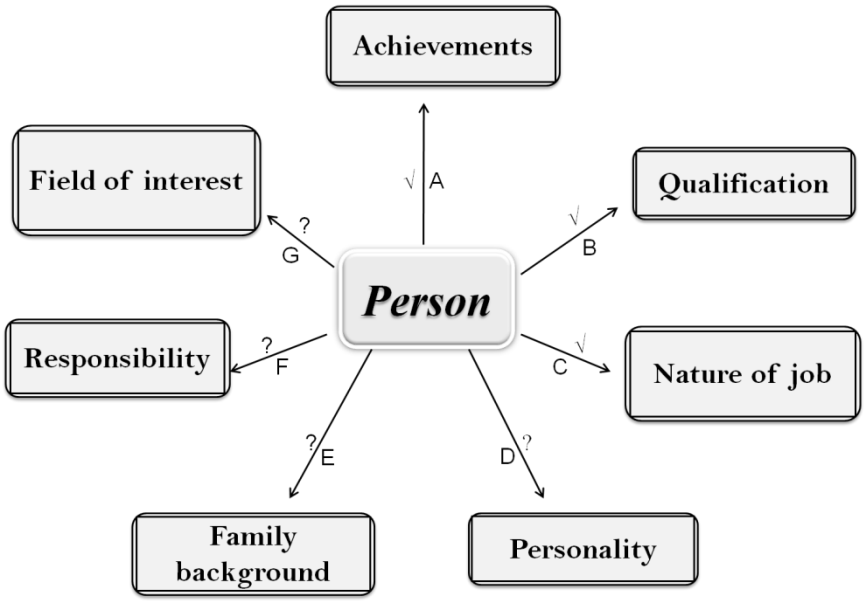

Fig-2: Linear connections between important concepts having tick mark signs (√) on the known connections and question mark signs (?) on the unknown connections

5. **The diagram developed on the basis of suggestions in the previous step, out lines the linear relationships in an orderly manner. It is to be modified to a systemic diagram. This can be done by placing the respective relations between the concepts as shown in the diagram**

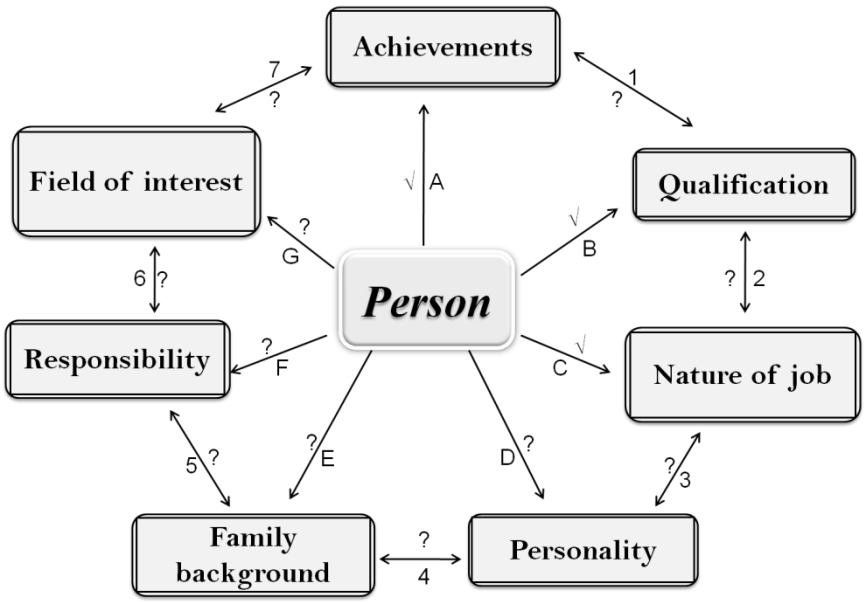

Fig-3: Systemic Diagram (SD-0)

This is going to be the first diagram of its kind in a series of diagrams that is expected to be illustrated during teaching and learning exercises. Let us call it to be diagram SD-0.
From the systemic diagram SD-0 one can notice the following.

a) Known relationships are well illustrated in this diagram through the tick sign (√).
b) The unknown relationships of diagram SD-0 bear the question mark sign (?).

6. **Now we come to another stage of lesson development where some of the undefined relationships of SD-0 are defined by the teacher and students are asked to replace few of the (?) marks on the diagram SD-0 by (√) marks. This will be done to those unknown relationships of SD-0, which are just learned from the teacher. Thus we arrive at diagram SD-1**

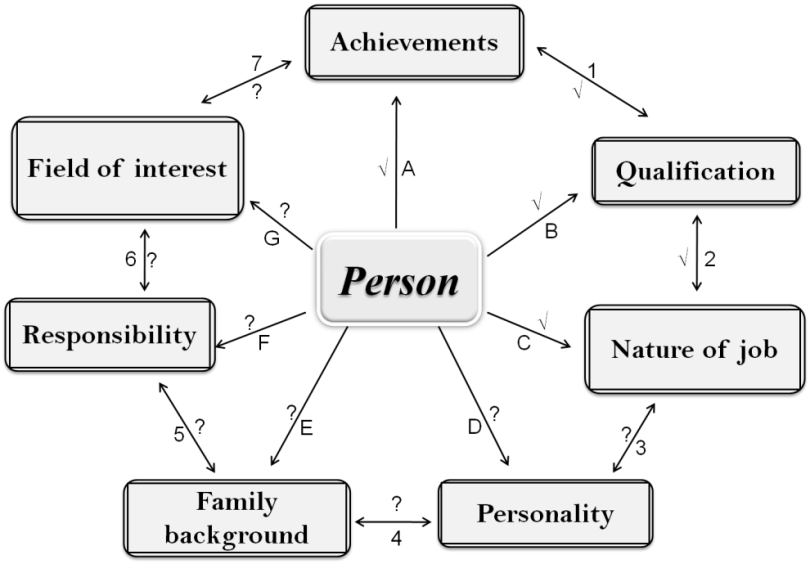

Fig-4: Systemic Diagram (SD-1)

We must note now that diagram SD-1 is composed of two types of interrelationships, one which are known, as they are clearly taught by the teacher and students have put on (√) mark on the account of their understanding. The second component with sign (?) are still unknown and hence to be debated in the class. The ensuing discussion, guides us to unfold secrets behind some more unknown. Following this class discussion and resulting conclusions, some of the (?) marks are also replaced by (√) marks on the diagram to symbolize them as known. This debate in the class about unknown

concepts in relation to known ones will result in building new systemic relationships and also help the teacher to assess the systemic understanding of the proceedings part by part.

When the debate proceeds further one can go deeper and deeper into the conceptual interface of the subject and identify newer relationships and when these are brought the diagram SD-1, it is converted into SD-2.

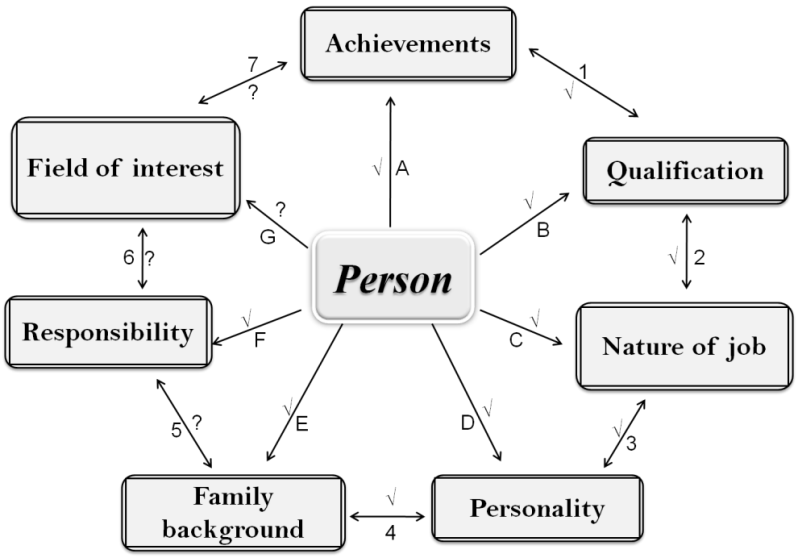

Fig-5: Systemic Diagram (SD-2)

A glance at SD-2, helps to appreciate and notice the following:

a) All the relationships have been identified except few, which have to be developed in the later stage of the lesson.
b) At this stage of study, the students are required to ponder upon the relationships developed during the debate and try to develop the remaining unknown relationships.
c) It is expected that at this stage of learning students could build several systemics of their own.

7. At this stage we come closer to our goal and even the remaining unknown relationships of SD-2 are known now and these are placed on SD-2 to obtain SD-3 diagram. The diagram SD-3 has answers pertaining to all unknown relationships and thus the learning unit gets completed

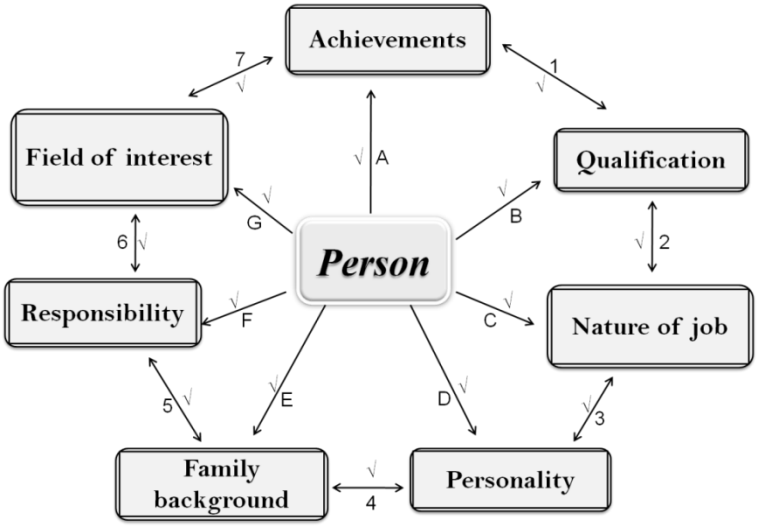

Fig-6: Systemic Diagram (SD-3) or (SDf)

This diagram SD-3 may be called the terminal systemic diagram or final systemic diagram (SDf).
Let us summarize what we have achieved in the above course of discussion.

- SATL units involve development of stage wise systemic diagrams (SD-0, SD-1, SD-2 and SD-3). These diagrams have SD-0 as a starting point and SD-3 as terminal point of the course in between them are SD-1 and SD-2 stages.
- The SATL teaching lessons are marked as SD-0, SD-1, SD-2 and the last SD-3. All of them are essentially similar except they differ in the counts of tick signs (√), the known relationships, and the counts of question marks (?), which represent the unknown ones. As the course progresses the (√) signs grow on the cost of (?). This scenario is diagrammatically described through following figure.

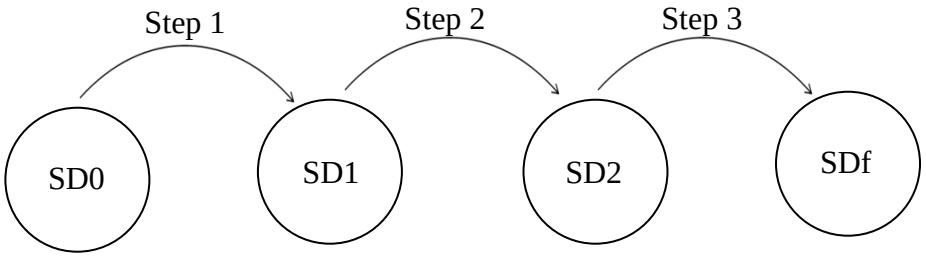

Fig-7: Systemic approach stratagem

- This is quite evident now that systemic approach develops comprehension against usually practiced technique of preparing notes for memorization. It enables the teacher to continue refining his/her teaching skills and the students ensure to accumulate knowledge through learning as the course proceeds.

- The students are allowed to tread upon a pathway of knowledge, as the teaching units unfold newer horizons of information. This motivates the students for developing interconnectivities with information imparted to them at various stages of SATL discourse and their basic inputs of the past. These exercises will make the students capable of finding new avenues of knowledge and build a correct cognitive structure.

- At the culmination of the lesson, the students may be advised to develop newer systemics of their own. This gives the teacher a chance to evaluate the student comprehension of the unit lesson through final systemic assessment.

Let us ponder another example for treating SATL path. We want to enlighten a group of knowledge seekers about a city. This SATL lesson would require the following multi step progress.

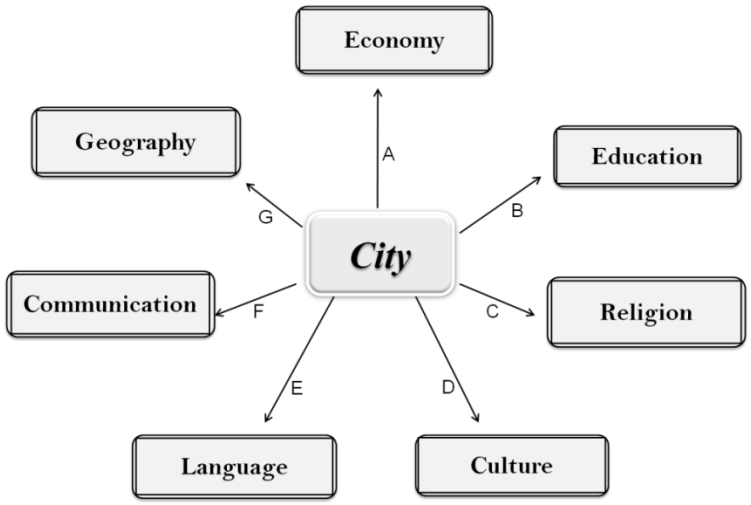

Fig-8: Illustration of linear connections between important concepts

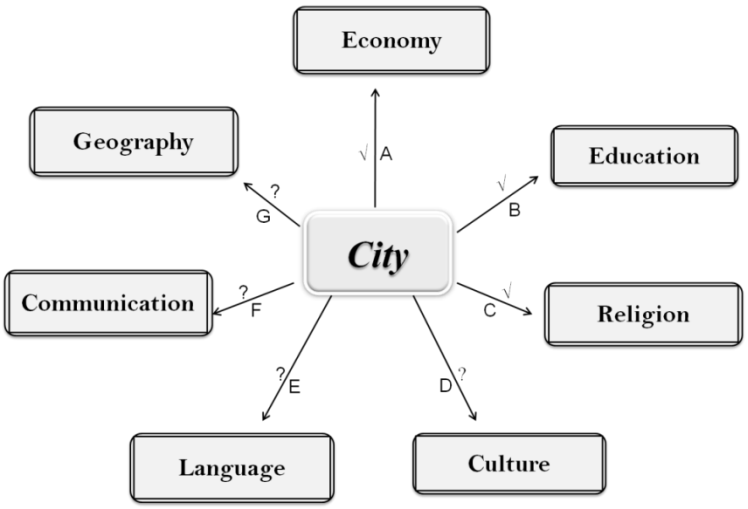

Fig-9: Linear connections between important concepts having tick mark signs (√) on the known connections and question mark signs (?) on the unknown connections

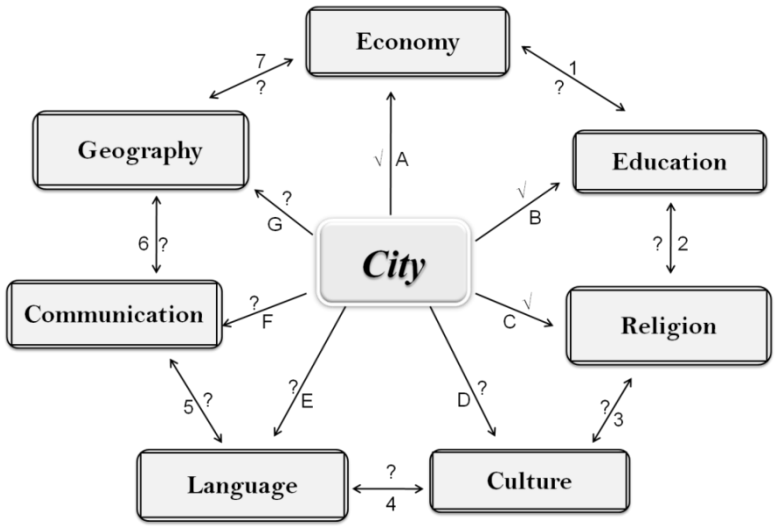

Fig-10: Systemic Diagram (SD-0)

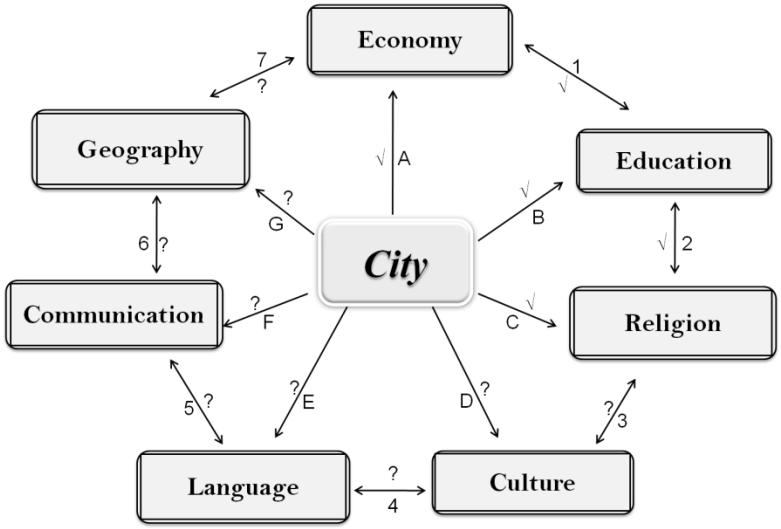

Fig-11: Systemic Diagram (SD-1)

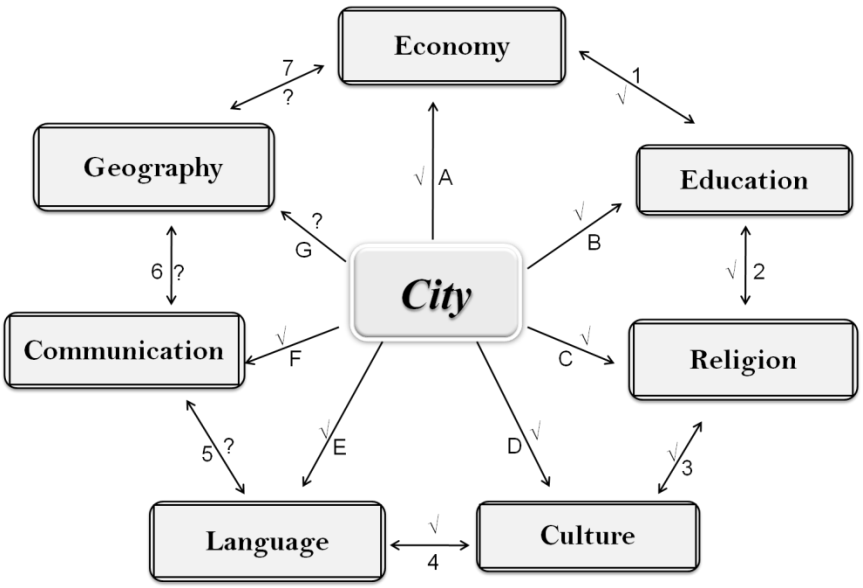

Fig-12: Systemic Diagram (SD-2)

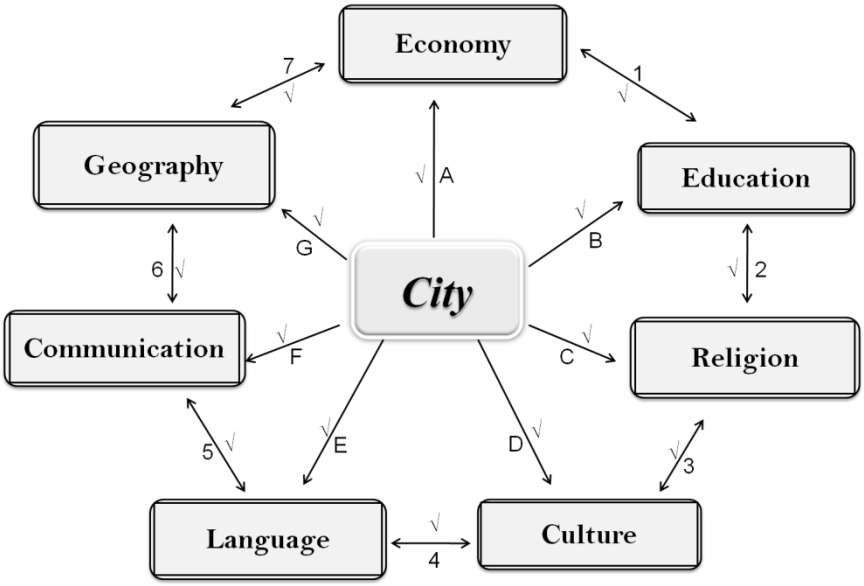

Fig-13: Systemic Diagram (SD-3) or (SDf)

While going into further details of the topic, the teacher may even develop several systemic diagrams on a variety of topics.

3. SUMMARY

Designing of lecture by using Systemic Approach to Teaching and Learning methodology has been demonstrated though common examples. However, this method can be utilized to enlighten topics of a particular subject like Chemistry[1-7]

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