

TMA02

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Question 1:

Explain the concept of “Active Listening” using a spray diagram? Discuss to listen actively what steps may be proposed? Use a common life example to illustrate the concepts.

Answer to Q1:

A spray diagram showing the concept of ‘Active Listening’ is illustrated in ANNEX 1.

To listen actively, we must mainly:

1. grasp from the speaker’s point of view what it is he or she is communicating to us, and
2. convey to the speaker that we are seeing things from his or her point of view.

This is done through the following proposed steps:

1. Listen for total meaning

Total meaning of a message is not only the content of the message but also the feeling or attitude hidden in this message. An active listener must “read between the lines” what message the speaker is giving. For example, when my son approaches me saying “mom, I’ve finally finished my homework”, I get the message that the homework is done, and that my son was probably loaded with homework. However, when he says “mom, I’ve finished homework”, I immediately understand that he’s hinting for what’s next; whether going out, play or watch TV.

2. Respond to feelings

As we speak, we express emotions through words. Sometimes these emotions are far more important than the content of the message itself. An active listener must be open to the range of emotions being expressed by the speaker, respect them, understand them, respond to them and must be able to pay attention to items which carry the most emotional charge. For example, if my friend approaches me talking about an issue that she’s emotionally affected by, I feel that this is the time I should ignore everything else I’m doing and focus on her, pay more attention to her emotional discussion and understand where the pressuring point is. In this case my listening to her becomes more sensitive and focussed.

3. Note all cues

We communicate through other methods than only words, and in such cases we must be sensitive listeners in order to understand the situation. These cues include: a speaker’s hesitance, voice inflection, facial expressions, body posture, hand movements, eye movements and breathing.

For example, if I get bored at any social event, I tend to play with my hair. Others might eat their nails or avoid eye contact when lying!

4. Feedback in own words

In a communication channel, feedback is one main component that ensures the message is well received, understood and commented on. In feedback, the listener must repeat what he/she understood using his/her own words. This happens with me and my little son often; since he uses two languages while speaking, I tend to repeat what he said, using my own words (sometimes with focus on one language), for two reasons: 1) to make sure I understood what he wanted to say, and 2) to stress on a certain language. Sentences I use while repeating what he said include “so you think ...so and so”, or “so what I understood from you is ...so and so”. This is either a confirmation to him that he has been correctly understood, or seeking his confirmation that I understood him correctly.

Question 2:

Discuss the concept of Qualitative and Quantitative Models? Explain the classification of various diagrams as 'process' and 'structure' based? Provide the diagram for such classification.

Answer to Q2:

Modelling is an essential part of systems thinking because it is the main way we can represent a system within a complex situation. Models used for such representation can be either qualitative or quantitative. They range from metaphors, to diagrams and mathematical models.

1. Qualitative Models

These models usually emphasise the relationships between entities without quantifying it. The most common forms of qualitative models are metaphors and diagrams.

- a) **Metaphor** is used to understand unfamiliar things by referencing them to familiar things based on our own experience. So much work in systems uses metaphors.

In explicit comparison; when saying “A is like B”, this is known as simile. However, the metaphor is when saying “A is B” or “A as B”, such as “my new car is like a rocket”. The less obvious the use of metaphor, the more powerful its impact.

- In overt comparison the situation and what it is being compared to are easily distinguished – it is a clear and obvious metaphor.
- In covert comparison the words are built into the language so deeply that you may not realise that a comparison is being used – it is a vague and indirect metaphor.

- b) **Diagrams** can show interconnections visually, rather than verbally. Diagrams show what would take several pages of text to explain adequately.

When drawing a diagram, it is a must to:

- think hard about what to include and what to leave out; what is important and what isn't,
- think about what interactions there are which might have led to the situation, and what factors might change things for the better,
- create your view of the situation, and
- be clear and specific about this view of a system.

2. Quantitative Models

These models are useful for predicting what might happen as well as describing what does happen. There is a number of advantages and disadvantages to these models.

a) Advantages

- quicker and easier to build
- can be used for trials using “what would happen if...” while changing variables,
- available “off the shelf” to be used in the system one is working with, and
- represent reality with relative accuracy.

b) Disadvantages:

- can be used by experts and mathematicians only, however, technology advancement has allowed most people to use them.

Classification of diagrams as ‘process’ and ‘structure’:

Process Diagrams	Structure Diagrams
Sign graph	System map (in terms of hierarchy only)
Rich picture	Spray diagram in an unbounded situation
Multiple cause	

Process Diagrams:

- **Sign graphs** show process information; they describe a situation in terms of variables and the web of interconnected causes and effects between them.
- **A rich picture** might suggest aspects of process such as causation and influence.
- **Multiple cause diagram** can be used to support a particular argument, but not to set out the structure of the argument itself. It examines what causes things to happen in a particular way, so it is more concerned with process.

Structure Diagrams:

- **Systems map** are used to show the structure of a system of interest at a point in time. They show the structure in terms of belonging and hierarchy, they never show process information such as sequence, causation or influence.
- **Spray diagrams** can be used to explore and show structure in an unbounded situation.

I chose the system map diagram for this classification, as illustrated in ANNEX 2.

Question 3:

Use Reading 5 of Concept File II Case study “Engineers and the Work that People do” for answer the following:

- (a) Use a rich picture to examine one or more aspects of the case.

Answer to Q3(a):

The rich picture is illustrated in ANNEX 3.

- (b) Identify possible systems of interest within the case, thinking about the purpose of each: Name two possible systems based on unintended consequences, and two possible systems based on desired outcomes.

Answer to Q3(b):

Possible systems of interest could be:

- A system for technology to replace human labour
- A system for upgrading human skills
- A system for misusing technology
- A system for enforcing a worldview to engineers

Two possible systems based on unintended consequences are:

- A system for technology to replace human labour
- A system for misusing technology

Two possible systems based on desired outcome are:

- A system for upgrading human skills
- A system for enforcing a worldview to engineers

- (c) Select one system of interest from those you identified in part (b), and use a systems map to create a structure for thinking about it.

Answer to Q3(c):

The system map is illustrated in ANNEX 4.

- (d) Explain what you learned about the case by going through this process. Also describe any further insights you gained as you applied the ideas from the concept file readings to your mess during the week's study.

Answer to Q3(d):

The case is indeed broad and discusses many things from different perspectives. With the first time reading, I was able to grasp the idea the author is discussing, but with the second reading and diagramming, I was able to understand more how his ideas are interlinked, view the dynamics of the case and see technology from a different perspective.

For example, I learned that the basis for engineers paradigm was the fact that adding technology to human skills, eliminating the human skill, is more profitable. I also learned that part of the engineers' worldview is not to under-use technical resources.

Without thinking deeply about it, and at a first glance it occurred to me that technology introduction had mostly positive effects, with sort of "narrow" vision, but going through this case study I've seen a broader view and was able to see the negative effects technology had on crafty labour.

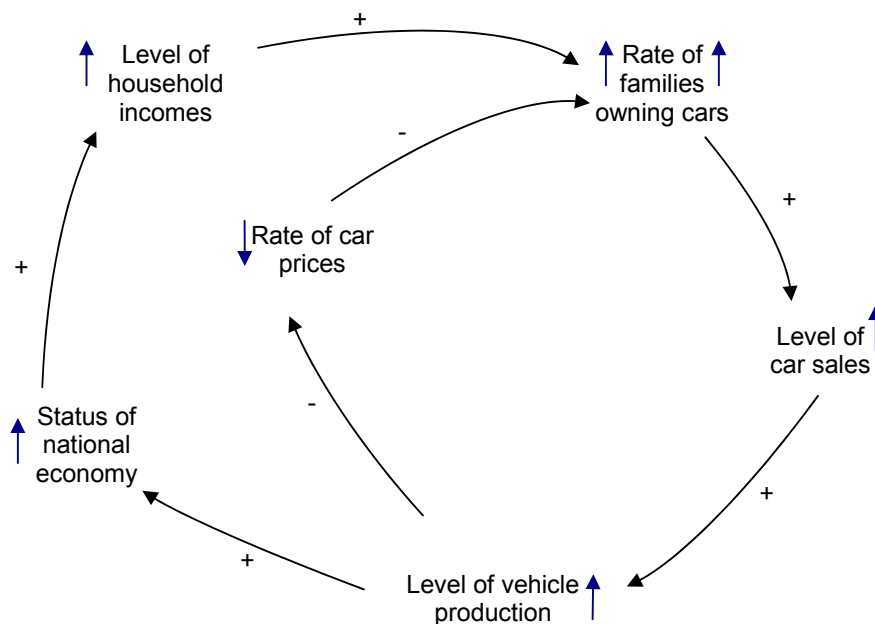
Through this mess, it was also interesting to learn about possible options available for knowledge management; especially when reading about the computerised diagnostic system and the workarounds.

Having read through and reaching the point where the author expresses his opinion that technology development that is well matched to human ability and that fosters skill and makes it more productive is the most important and stimulating challenge was an eye-opener for me, because the author has put in words what I've always believed myself and never had the opportunity to express.

Question 4:

This question is about multiple causes and the use of sign graphs. The following multiple-cause diagram is the starting point for this question.

(a) Convert this multiple-cause diagram into a sign graph, by renaming the states and events as variables and by placing a sign on each arrow.

Answer to Q4(a):**A sign graph about car production in China**

(b) Identify any feedback loops within your sign graph, stating whether they represent positive or negative feedback. Describe the characteristics behaviour of this type of feedback.

Answer to Q4(b):**First positive feedback loop:**

Rate of families owning cars \pm → Level of car sales \pm → Level of vehicle production \rightarrow Rate of car prices \rightarrow Rate of families owning cars

In the above loop, we have an even number of negative sign thus the feedback loop is positive. In such cases, the starting and ending point (rate of families owning cars) enjoys the same direction of increase or decrease; i.e. if we start with an increase in the rate of families owning cars, we also end with an increase in the rate of families owning cars, and vice versa. This leads to a situation out of control!

Second positive feedback loop:

Rate of families owning cars $\xrightarrow{+}$ Level of car sales $\xrightarrow{+}$ Level of vehicle production $\xrightarrow{+}$ Status of national economy \rightarrow Level of household incomes $\xrightarrow{+}$ Rate of families owning cars

In the above loop, all signs are positive thus the feedback loop is positive. In such cases, the starting and ending point (rate of families owning cars) enjoys the same direction of increase or decrease; i.e. if we start with an increase in the rate of families owning cars, we also end with an increase in the rate of families owning cars, and vice versa. This also leads to a situation out of control!

Question 5:**Preparation for Block 6 project**

In Block 6 you will perform an extensive mess analysis on a subject of your choosing, for TMA 06. You need to start thinking about the subject of this analysis now, so that you can reflect on it, and develop your ideas over a number of months as you study the remaining blocks. You may wish to focus on a theme from one of the other blocks (Environment and sustainability, Management and organizations, Globalization and information) or you may prefer to focus on a mess from your own experience of, for example, situations involving relationships or conflict. It's too early to ask you to make a firm decision, but we'd like you to begin the process of finding a good topic by setting out some of your possible choices here. Write a few paragraphs - not more than 300 words – telling your tutor at least three topic areas that interest you, and some particular messes or systems of interest you might consider.

Answer to Q5:**SUBJECT AREAS OF INTEREST TO ME:****1. Environment and sustainability**

- Global warming
- Sustainability
- Natural resources
- Development and its environmental affects
- Threats
- Environmental mistakes
- Improvement
- Sustainable development

2. Adolescents' role in community

- Recognising adolescents and their skills
- Benefiting from adolescents
- Empowering adolescents
- Adolescents in a changing world

3. Child education in Jordan

- The traditional approach
- The modern view
- Educational tools
- Educational levels
- Globalisation
- Academic resources (teachers, schools, funds, etc.)
- Recreational areas
- Introduction of IT
- Students of war in neighbouring countries

SYSTEMS OF INTEREST:

Environment and sustainability

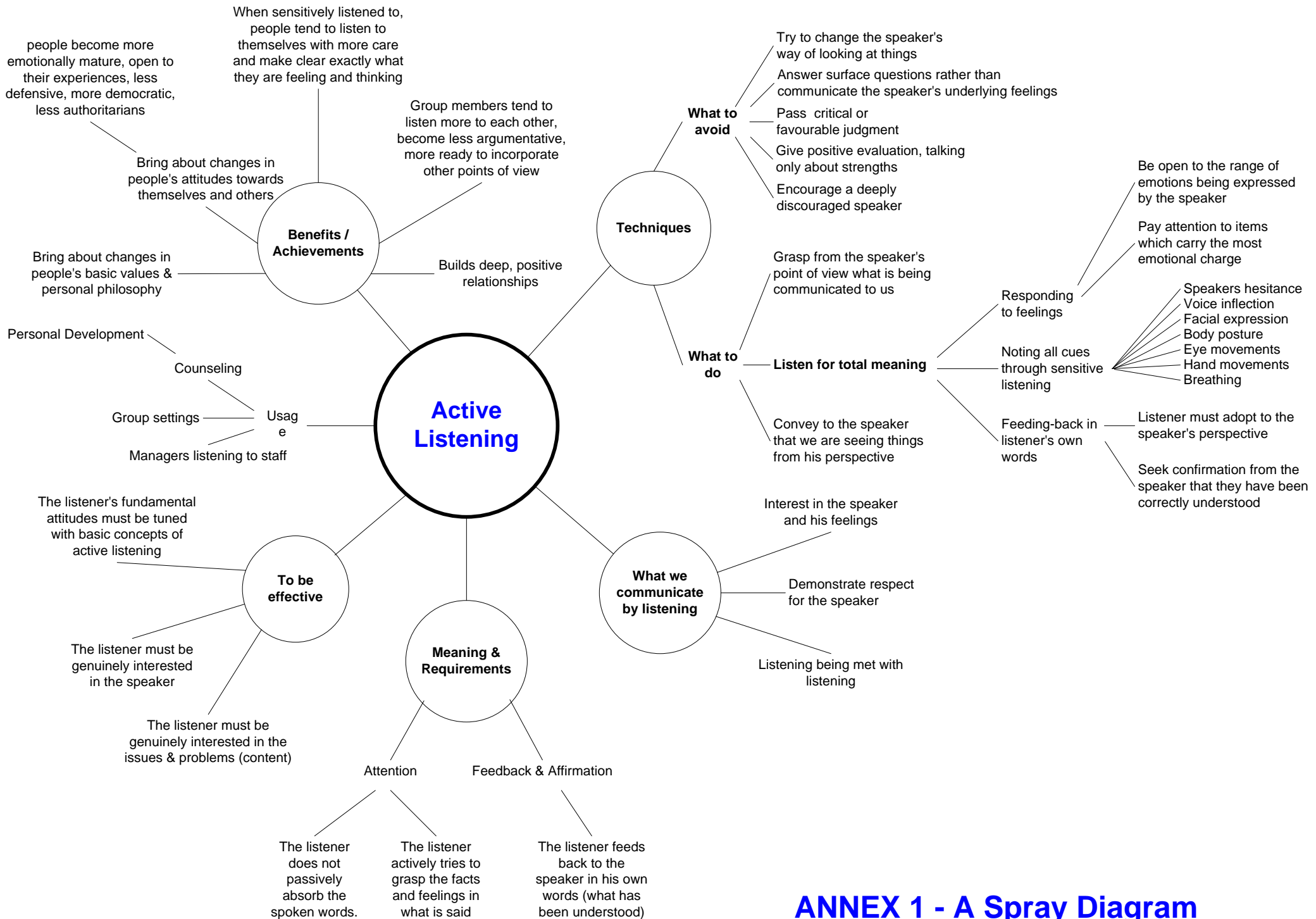
- A system for a safer future
- A system for destruction of earth
- A system for exploring other planets
- A system for changing current development processes
- A system for introducing a new business opportunities
- A system for affecting demography

Adolescents' role in community

- A system for introducing new group of skills
- A system for empowering adolescents
- A system for rule changing
- A system for increased benefit for community
- A system for more adolescent freedom
- A system for risk increase

Child education in Jordan

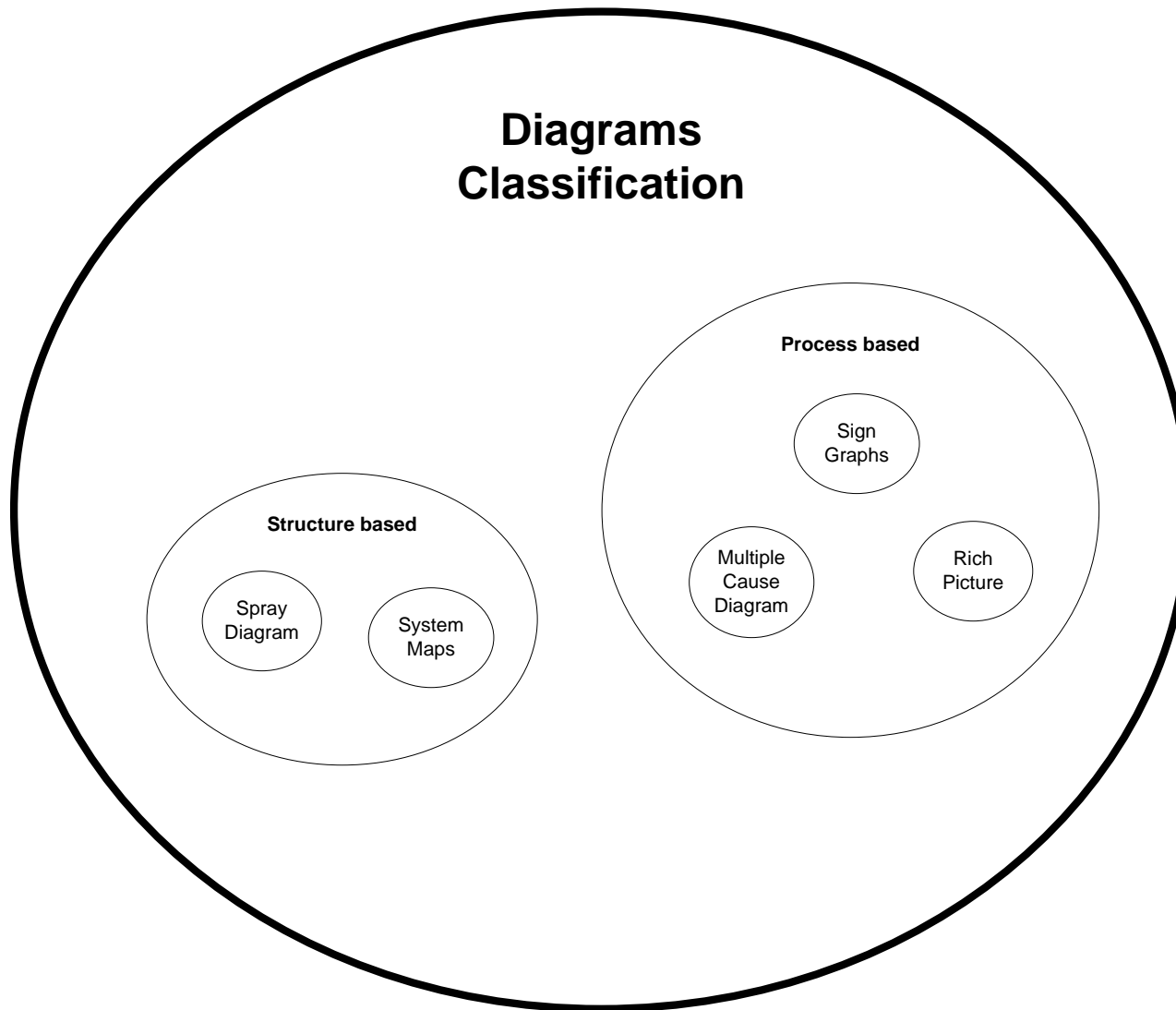
- A system for teacher development
- A system for parental awareness
- A system for IT enforcement
- A system for a new powerful generation
- A system for global educational competition
- A system for old teachers retirement
- A system for job creation

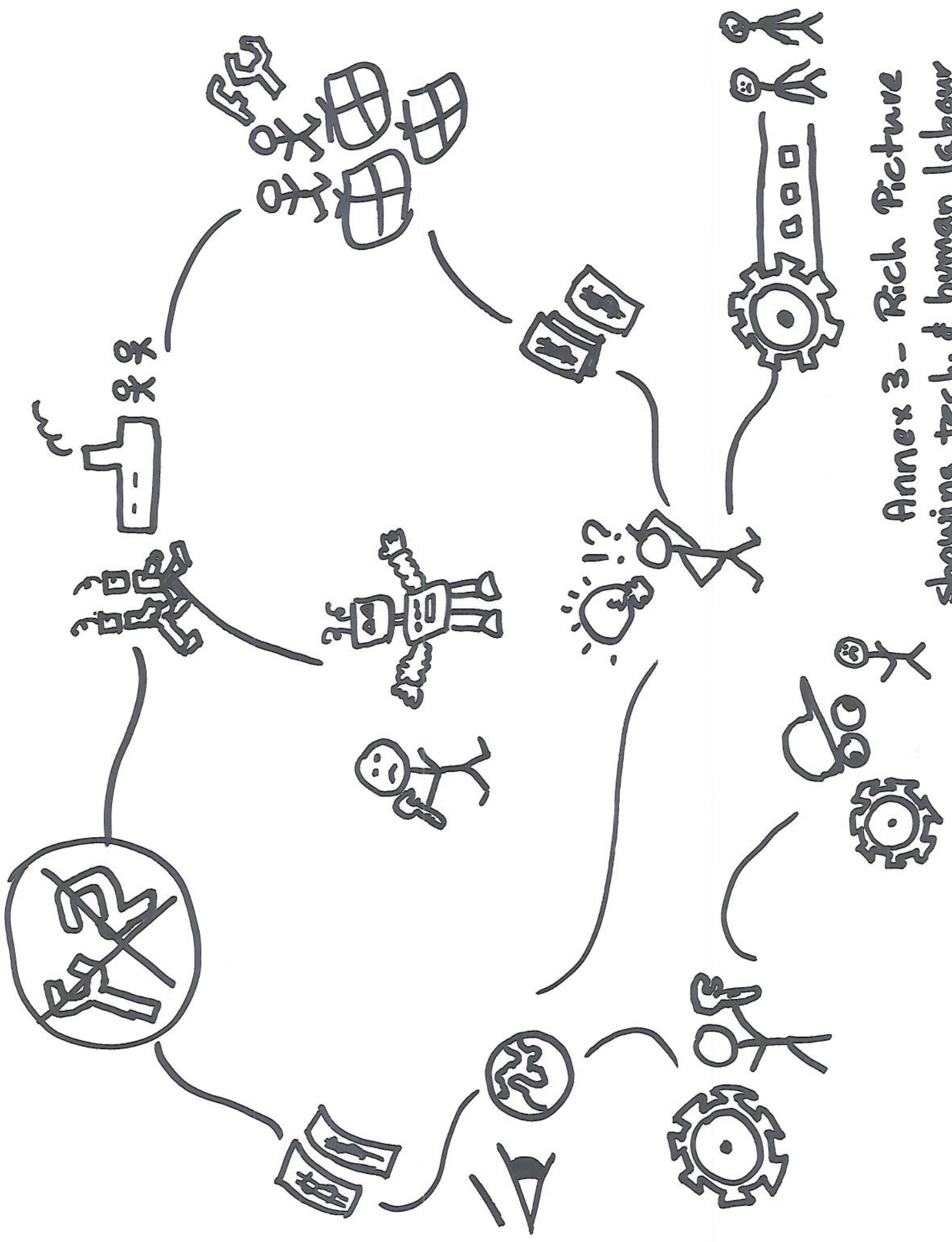


ANNEX 1 - A Spray Diagram showing the concept of "Active Listening"

ANNEX 2 - A System Map

showing the classification of various diagrams as 'process' and 'structure' based





Annex 3 - Rich Picture showing tech. & human labour

ANNEX 4 - A System Map

showing technology as a system for upgrading human skills

