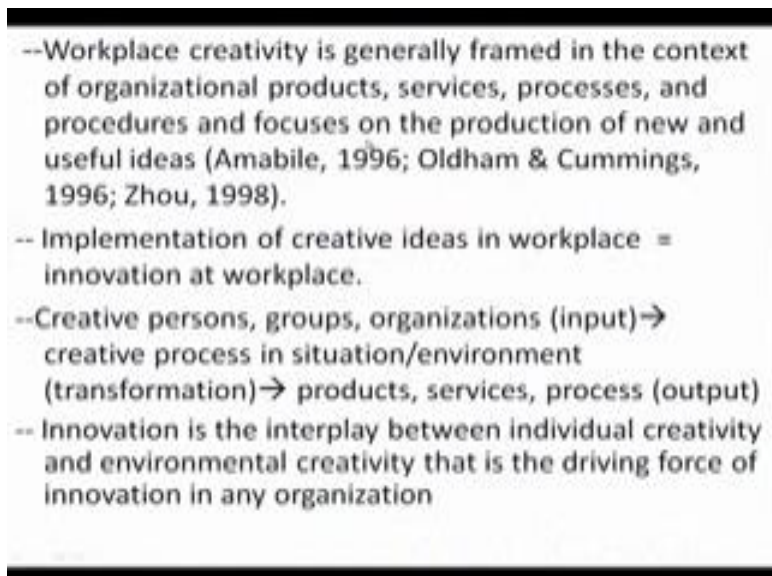


**Soft Skills Development**  
**Prof. D. Suar**  
**Department of Humanities and Social Sciences**  
**Indian Institute of Technology, Kharagpur**

**Lecture – 29**  
**Creativity at Workplace**

Friends, now we will be talking about Creativity and Innovation at Workplace. And in these topics we will be covering the difference between creativity and innovation. Second will be discussing about the innovation at work place, and third we will mention about the techniques or idea generation.

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Coming to the first point, workplace creativity is generally concerned with organizational products, services, processes and procedures. And it focuses on the production of new and useful ideas. In the context of which product, services, processes and procedures, and when you mention about creativity ideas in the workplace. If it is implemented that is called the innovation at workplace. As I mentioned earlier implemented creativity is innovation.

And there are 1, 1 side there is a input other side there is a output. In input side in the organization there are creative persons, groups and organizations. And in the output side we have the products, services and processes, but in between that there is a transformation from input to output, from creativity a person's groups and organizations it goes to products services and processes in between there is a transformation takes place. And that is the

situation or the environment in the organization, which will be conducive to the creative process. So, therefore, in the context of the organization innovation is the interplay between individual creativity and environmental creativity that is the driving force of innovation in any organization.

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**New Challenge**

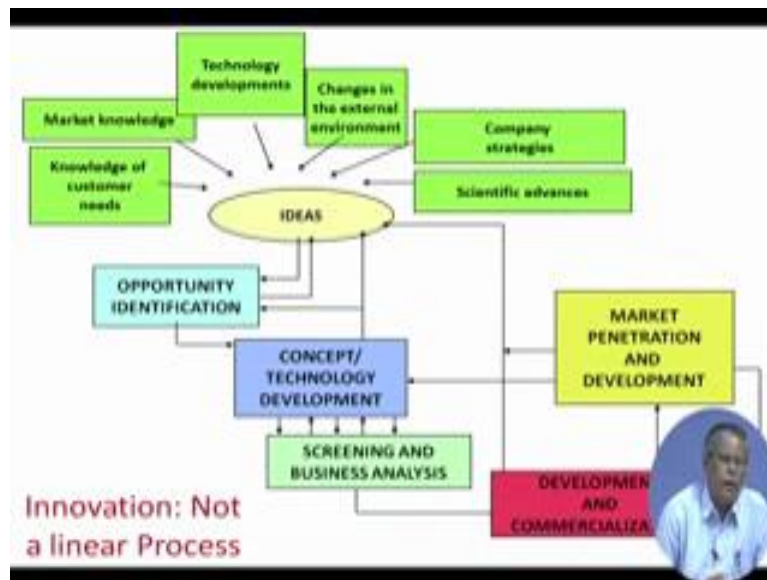
- A company manufactures glassware. The last step of the process is to **wrap glasses individually in used newspapers and then place them in a specially designed box**. The box is then sealed. Management notices low productivity with this last step, observing that workers occasionally stop, to read the newspapers? What can management do to increase productivity?



Take example, a company manufactures glassware. The last step of the process is to wrap the glasses individually in used newspaper. And then place them in a specially designed box the box is then sealed, management notices low productivity with this last step observing that workers are occasionally stop to read the newspaper. What can management do to increase the productivity, The idea may come to your mind that we will not use the newspaper anymore, and if you use any other softens are wrapping of the glasses then in that case, we have to match with the cost. Whether, the cost is higher and lower then these, lower cost is preferred or you may find out some other ways how the glasses can be wrapped. So, that it will be put in the designated box, likewise various alternatives are required to sort out this simple problem what the company is facing.

And it can be only sorted out when the employees those your doing the job, management who is a directing to do the job or involving to do the job, and the company procurement department which procuring the materials. All these people need to involve in order to make an in order to go for a creative solution or a go to a creativity solution or an innovation in these case.

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And as you as you can recall creativity in the organization which never a linear process, because for the ideas to create in a specific context one most of the knowledge of the customer's needs, must have the knowledge of the market, must have the knowledge of the technology development, and must have the knowledge of changes in the external environment and at the same time it will also look in to company strategy.

Whether, it is going for quality product or cost optimization etcetera. And also the person who is involved to make this creativity they must be aware about the scientific advances in these particular fields. And at the same time what it requires, it requires screening and business analysis and at the same time opportunity identification. If you are developing the idea in the technology it requires opportunity identification. And that will lead to the development of the product and after the product is developed then there will be commercialization, market penetration and then the organization will sustain financially.

Therefore, you will if you look at this figure you will be finding that creativity which never a linear process.

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**Benefits of increased innovation ...**

- Increased synergy from information sharing, joint initiatives, integrated policy, investment in R & D and benchmarking
- Better efficiency and cheaper products and services which are more attractive than those offered by competitors
- To foster innovation: Ensuring that organizational structures and processes optimize both creativity and innovation;
- Developing the creative capacity of staff through training.

--How many organizations that exist today but that are not open to creativity and innovation and willing to change will still exist in 10 years time? **None!**

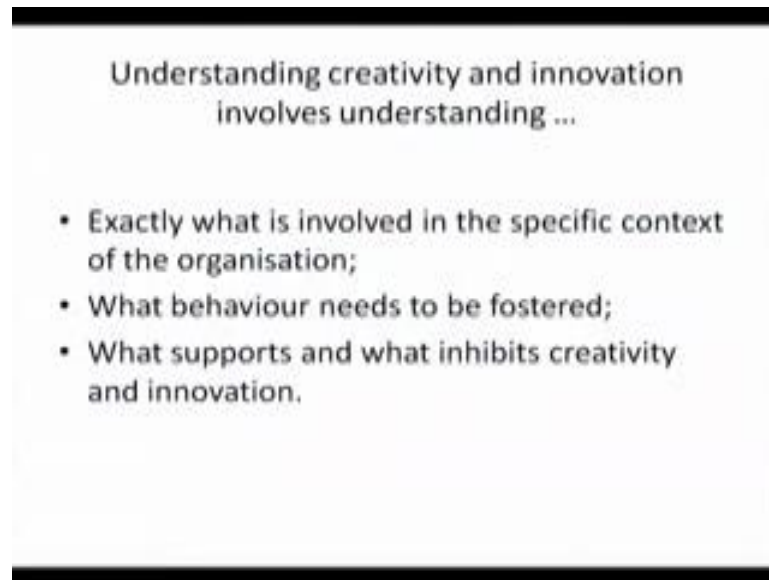
-- There is need of continuous innovations for sustainability and profitability of organizations.

But at the same time, there are many benefits of more innovation in the organization. If the innovation will be there then the group which is accountable for the creativity or the representative of the different people in the organization, they require to share the information there will be a joint in initiative by the group, and that is mostly integrated policy in the organization and there must be investment in the r and d, and if you are making a product or a service, then it will be benchmark with the others, whether the service is better compare to pictures costs and other dimensions.

And because, better efficiency and cheaper products and services are more attractive than those offered by the competitors, and to foster innovation we you have to not only this is the issue, but we have to ensure that the organization structure and process optimize both creativity and innovation. And also it requires that in order to make the creativity at requires the training of the people, for developing their creative capacity. Then only creativity will happen, or innovation will take place. Let you answer, one question. How may organization that exist today, but that that are not open to creativity and innovation, and willing to change will still exist in 10 years time. How many organization that exist today, but they are not open to creativity and innovation, and willing to change will still exist in ten years you are question is this.

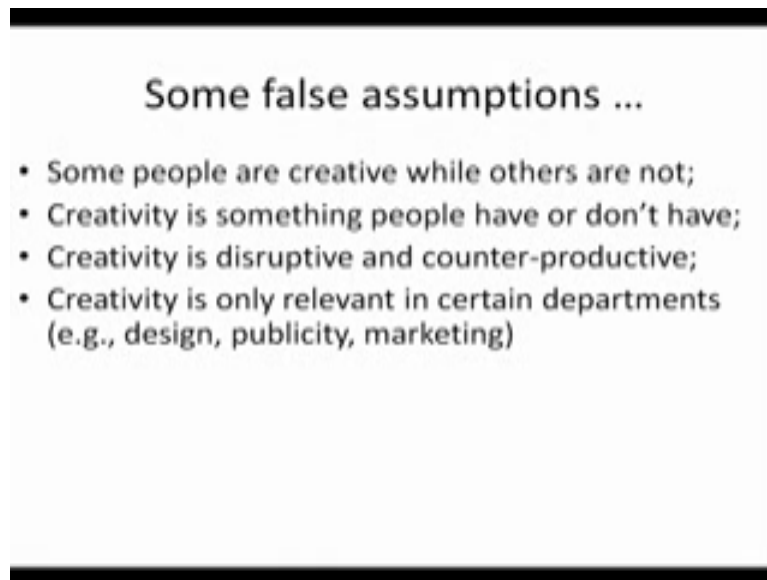
That means the organizations are not willing to go form innovation. So, if there not willing to go for innovation, will they exist of to 10 years perhaps none will exist, because there is a need of continuous innovations for sustainability and profitability of organizations.

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And understanding, the creativity and innovation involves understand exactly. What is involved in the specific organizational context? And what supports oscillates, and what behavior inhibits creativity and innovation and accordingly, we have to see what behavior can be change of the employees or the stake holders of the creativity group. So, that it can be foster for creativity in the organization.

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And there are some false assumptions, some people are creative we have to while others are not, everybody has a right grain and right grain is accountable for the generation of the idea. So, everyone can be creative, everyone is to some, everyone is creative.

Creativity is something people have, or do not have, it is a false notion. Because everyone must have some amount of creativities, some may be exceptionally innovators, some may be low in innovation, but it is not that some people have, and some do not have. All have that spark of creativity because all have the right brain. Which is accountable for creative ideas? Creativity is disruptive and counterproductive as you mentioned earlier, without creativity the sustainability of the firm and profitability of the firm will be questioned. And creativity is only relevant to certain departments no you may think that it is only applicable to design, publicity and marketing department, but creativity is required in every sphere. It is required in finance, it requires it is required in marketing, it is required in operations, it is required in h r, and it is also required in information technology areas of the organization.

Therefore, it is applicable to all the departments.

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And there are some barriers to creativity, because if the people are there. They are not even, if they have the potentiality for create innovation and creativity that potentiality is not hornets or it is not used. So, there is a organizational slack, bureaucracy is there and rated rate (Refer Time: 11:17) in prevails as a result of which creativity is delayed. And perhaps it may not happen, and similarly if the structure is not flexible enough it will not accommodate the creativity and innovation. And there is a poor communication between the staff, or the people those who are creative, and the people those who are high in creativity and the top management.

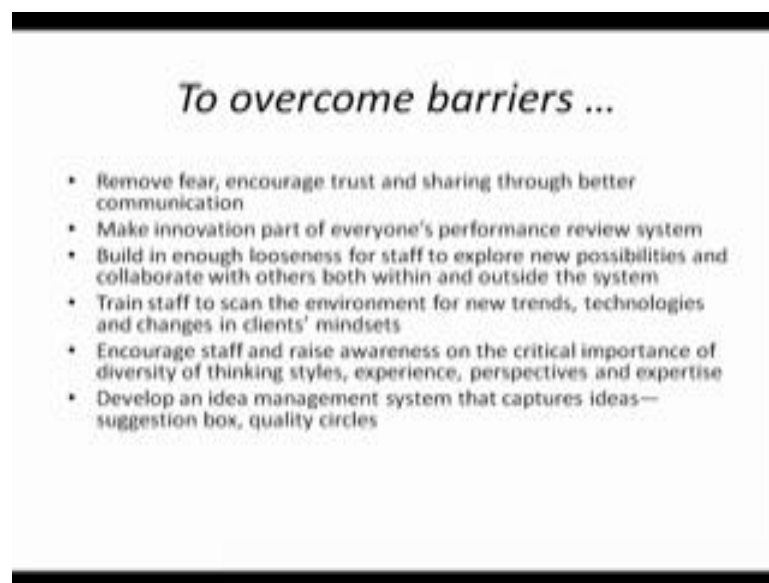
If there is a poor communication then creativity will not happen. And it is a belief there is a imported talent syndrome, what its fix that by bringing the people from outside they will be only creative, and they will be the innovators in the organization. It is a false notion because, if the organization does. So, then the insiders will feel de motivated for creativity, and everybody has the ability to create something and the scope must be provided for creativity. And there is also a point that if somebody takes a takes the risk and go for a particular product, or a service or, a process optimization through the analysis, like business process, we engineering where you optimize time and the process.

There is a risk that this may not succeed in the market. If the product is launched and the product penetrates the market, there is a chance that the new product at the new service may not sustain in the market. And there is some financial risk, because money is already

invested, if you are and gets the r and d and doing something new money is in already invested for the project, but once the money is invested and to creativity there is also no deadline it is very difficult to stick to a particular dead line, when you are expecting the creativity from the people it takes time. And once it is successful, and if the project is successful, the product is successful, or the service is successful, then there will be perinea flow money to the organization for all time to cover.

What you want to say, that the organization some of the organization there ours that if you are going for this sort of product. There may be a if the product does not click, then whatever money we have invested to develop the product from inception or conception to the final stage. So, we will not able to recover that money will be in loss. So, therefore, many of the organizations there were financial aversion to risk taking.

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Therefore, when you are to sustain creativity we have to remove fear, encourage trust and sharing through better communication the ideas. And in the performance appraisal review you make innovation a part of the employees performance. In some organizations it is done say for example, in scientific organization when the performance is gauged it gauged on the basis of the number of papers published, the number of patents filed and the number of (Refer Time: 14:59) re persons have received. All these are taken in to consideration particularly in scientific r and d organizations or science in technology are organizations, as well as in



educational institutes those who are trying to develop the different products and different products.

And to make the creative, make the innovation, happen built enough looseness for staff to explore new possibilities and collaboration with ours. Both within and outside the organization and train the staff also to scan the environment, for new trains technologies or change in customers mind set and so, on. Encourage the staff and base the awareness on critical importance of diversity, divergent thinking and therefore, they can use their experience prospective and expertise to come with come with different ideas. And put the idea management system in place like many organizations they have suggestion box. Where people can put this suggestions, if they are experiencing a problem which will be further scrutinized by the management and with the approval of the management it will be executed.

Similarly, one such idea is qualities are prince where eight or ten members from the same work area. They will be during the company premises, during company hours they will discuss. What we can do to improve the quality of the product or services, and there are some tools and techniques are talk to them like cause effect diagram, then para to analysis, there small tools are talk to them. So, with which they can they can histogram then all these tools are talk to them. So, that they can do the analysis in the work place and they can come out with ideas, and the ideas you once it is they are it will sent to the top management, and with the top management to approval it will be executed. And it has been found India and elsewhere, that if you implement quality circles it has reduce the cost scraps are decreased and at the same time the productivities of the firm is improved.

These are the some of the wage.

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**Additional elements to consider ...**

- **Flexibility** – to adapt according to the context, culture and sensitivity of those involved;
- **On-going development of the initiative**, if possible by means of self-reflection and self-evaluation and, if possible, action research to evaluate, constructively criticise and modify strategies in order to continually improve them;
- **Motivation on the part of the key people** involved;
- **The establishment of a creative climate** where mutual trust and self-confidence are developed. --"Building a **creative climate** involves systematic development of organisational structures, communication policies and procedures, reward and recognition systems, training policy, accounting and measurement systems and deployment of strategy." (Bessant and Pavitt, *Managing Innovation*)



How one can overcome, the barrier additional element to consider is that there must be enough flexibility in the organizations. According, to the context culture and sensitivity to those who are in the creativity task or innovation task, and there soon be out going development activities. If possible by means of self reflection self evaluation and construct to getting the constructive criticisms from others and modify the strategies in order to continually improve the persons, as well as the products and services and motivation of the employees, is also a part of it those who are involved in the innovation task. So, therefore, the organization must extra have to motivate them.

And the establishment of creating climate is also important, where mutual trust and self confidence are developed building a creative climate involves systematic development of organizational structures, communication policies and procedures reward and recognition systems, training policy, training polices, accounting and measurement systems and development strategy and all this will lead to the innovation.

And also one will lead to that entrepreneurship is also closely linked to with creativity and innovation, because you will find the entrepreneurs in all organizations all of the employees are not entrepreneurs. Some people are those who involve from the idea generation to idea execution or implementation, to market the product and services and being profitability or bring wealth to the company. So, they are the people those who are star performers, some of

them are star performers they when work beyond the call of the duty they put a lot of hard work in the process, and ultimately they create the wealth for the organization.

And such people are of course, like highly creative people such entrepreneurs are also rare. And if their then only it will lead to this sort of cultural in the organizations. All organizations you from software, to IBM, to general motors, and to (Refer Time: 20:05) every organization find there are some people those who are innovators. And they are the people those who have a those who are innovators, those who are entrepreneurs and that spirit is such that they take a particular idea, from the conception stage, to the fertilization stage and ultimately make it commercial we have all in form of product and services and generate the wealth.

And also teach the people the benefits by adopting basic set of entrepreneurial practices, in their working life where possible. If the low on the basic entrepreneur practices they can apply the same to their social civic and commercial institutions with which they are active. So, it will benefit to the organization as well as benefit to the surrounding environment in which they leave.

In when we have all told, all these where the basic thing, if that idea are the currency to success. If you have the ideas you can separate yourself on the competitors. So, therefore, it is essential to study how what are some of the tools though which the organizational members can be creative. And there are various techniques for idea generation and this requires the involvement of the representative of the difference stake holders people from marketing, finance, operations h r, I t all need to involve. So, that the creative idea can be generated on because, the problem can be of any area and the problems which do not link to one department the problem is effecting the entire organization.

So, until unless from the varied prospective the problem is seen it will never lead to success. So, therefore, involved these stake holders in and by doing that what will do who will overcome the limited information. Because when many people gather some people will provide some information from marketing prospective. Another will provide from the operations prospective still, another will provide the information from term I t prospective. So, this different prospective shown their gather together it will provide a reach base of information, for either for process optimization or time optimization or for new product development and. So, on and it is active learning process because, in the process when people gather together and generate, the ideas every one lawns from the others. And it will also

counter the personal bias in the sense that if I have a biased information or a biased idea with appropriate logic and information it will be countered by the over stake holders.

And when the people involved themselves in making the decision they are will be a acceptance of the solutions, but then the question comes how they will be that group. Generally a small group will compromise of eight or ten persons or twelve persons maximum like in qualities are two we have this small group of ten or twelve person's ten persons. So, therefore, there will be a small group and there are some technique which they can use for, idea generation and these techniques will discussed these are mentioned here you can see and you will discussed one after another briefly.

First is slip card writing, slip card writing is a technique where each member of the group receives a pad cont, pad containing 25 slips or cards, the facilitator can ask the group members to write as many alternatives as possible within 5 minutes. Each alternative must be written on a separate card or a separate slip, keeps the how to problem as specific as possible. And before and during slip writing keep hurrying group members and telling them to write as many alternatives as coming to their mind. Instruct do not stop to think, you are already thinking right whatever comes to your mind when seven eight people are there for slip card writing, they are from different functional areas the problem is presented to them. So, ultimately you will get a lot many ideas from the group how to sort out get problem or how to result these so.

Then all the ideas later on can be combined, and some effective idea can be their which can again move from the conception to the final stage of implementation. Another is a brainstorming brain storming is a basically, storming the brains of people in group the problem is posed, and then they are asked what is your opinion, what is your opinion, what is your opinion like that. So, the when the problem is asked then the solution is sort from the group members one after other the people will provide the solutions. So, therefore, this is a process which operates when the basis of four principles all criticisms are ruled out no one is allowed to, no one is allowed to, no one is allowed to (Refer Time: 25:39) other question any idea one till idea generation process is completed. Second free willing which welcome the emphasis is a creativity and imagination the wilder, the ideas the better third quantity of alternative solutions is encouraged without reference to quality.

The more the alternative are generated the greater the likelihood of useful alternatives. Fourth piggy backing is good, everyone is encouraged to suggest how others ideas can be turned into new ideas why combining 2 or more ideas, but there is no criticisms in the process of idea generation or there is a no question for a particular idea. So, it creates a lot many ideas by a applying the brainstorming and there is an alternative growth and stretch matrix. He says like this the alternative here is a written like here.

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|                             | Group Members |   |   |   |   |   | Summary |
|-----------------------------|---------------|---|---|---|---|---|---------|
|                             | 1             | 2 | 3 | 4 | 5 | 6 |         |
| Insert the problem here?    |               |   |   |   |   |   | =       |
| What else can I do with it? |               |   | ✓ | ✓ | ✓ |   |         |
| Who else can use it?        |               | ✓ | ✓ |   |   | ✓ | ✓       |
| Where else can I use it?    |               |   |   |   |   |   |         |

That the alternative is written that insert the problem here, then there are group members. Who are 1, 2, 3, 4, 5, and 6 then there will be a keep here a summary column

Then whenever a inserting the problem here, then the question is asked and then some helpers are tacked to do it that what else, can I do with it, who else can huge, it where else can I use it, like that the group member all the it will be column like this groups members are there, and when you ask a question. All question may not be inserted by all problem, all persons in the group. What will find that the first person may answer the in the group member, third may what else I do with the, or group member five men's have to what else can I do with it ok.

Who else can use it? It may be first and, second person or third person may be during the replier, where else can I use it the five and six may replay, like that you can tag also when else can I use, it how else can I use it, like that if you can ask and going on asking the question end lastly, you the group member you get a summary. What else can I do with it?

The summary can be summarized. So, also in all summary column all the summary will come, and record the members reactions in available space not all space will be filled and all questions are answered always, two or three members in group can clarify and summarized the answers again these question that can be (Refer Time: 28:43) down in the summary column for implementation there may be a little bit if discussion after the idea stage and idea growth matrix.

There is similarly, how to sessions is there where the question is kept open and how to sort out this problem and again like this the group members can further discuss and evaluate the alternative to find out. Once the idea are the generated, how to the question is that write on a piece of paper all the different ways, how we see this problem beginning with the words how to. And once that is sorted out and idea that generated from group members then this can be scrutinized some useful ideas can used. Similarly, there is success and successive filtration of ideas which makes that it is just like a funnel type of idea generation. Where the group of people who will be decomposed into two three small groups or four or five members and a problem will be giving. They will generate the ideas, then each group will select and best ideas, then all then they will decide who will re present their group and the leaders of the group all three or four groups, they will compose a new group. Again they will read the ideas discuss the ideas filter out the ideas and written ten best ideas.

And once the ten best idea that there, who where, how when and who you tacked with attach a flip tack, flip chart and tack and, the questions what, where, how, when, how you put like put to it. And will find all the details for the implantation or execution of the ideas, and there is also face to face interaction group where the people can sit together and discuss they can get a lot of information and how to sort out issues, or how to go for a new product or a process.

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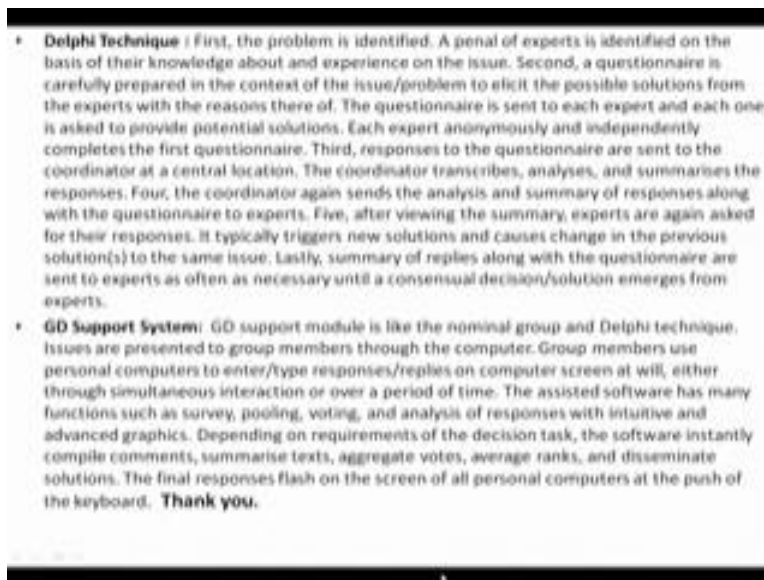
- **Face-to-face Interacting Group:** In face-to-face interacting group, discussants retrieve ideas, images and thoughts in the form of information from memory, to evaluate the alternative solutions to an issue.
- **Nominal Group:** First, the problem is presented verbally (such as narrating the issue and then posing the question: how can the overtime be reduced and regulated?), pictorially, or written on a flip chart or a blackboard. Second, before any discussion takes place, each member is asked to write an idea/solution independently on the paper for the issue in a fixed time. Third, when all members complete the writing silently, each member takes his/her turn, around the table, presenting a single idea until ideas of all members in the group have been presented and recorded (typically on a flip chart or chalkboard). No discussion takes place until all ideas have been recorded. Each group member is asked to rank the ideas independently according to their importance (from most to least important), assess each idea's usefulness (useful = 2, neutral = 1, not useful = 0), and ease of implementation (easy to implant = 2, somehow easy = 1, not at all easy to implement = 0).

The whenever, is techniques is called the nominal group technique. Are to problem is presented verbally, nominal means the group which present for there is no bar bal communication among the group members. That is why what nominal is used first the problem is presented verbally such as narrating the issue and posing the question how can the overtime be reduced and regulated.

Or if it is a technology problem then it can be pictorially or written on the flip chart and it can be written on a black board, before any discussion takes place each member is asked to write an idea or a solution independently on the paper, for the issue in a fixed time one idea one person. Third when all members complete write writing then silent then one member each member takes its term around the table present a single idea, until all members in the group represented the ideas and those are recorded. Either, it is recorded either on a flip chart or in a black board; no discussion takes place until all idea there will be in recorded. Each group member is ask to rank the ideas independently, according to their importance on usefulness and implementation along with the importance of the ideas.

Idea is the implemented, and the details are choked out for the execution of the idea once we find the idea which is high in importance, high in usefulness and high in implementation or high in ease of implementation. Even if a good idea is their if there is a difficult to it implement that may not sustain in the organizations and research as shown that these techniques gives a lot of creative ideas.

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Similarly, Delphi is their where it is a by the rank corporation in USA. First the problem is identified and if the problem is their then the penal of experts are decided, from different parts of the globe then need to have to come a physical location to make the decisions. And second a questionnaire is carefully, presented prepare in the context of the issue of the problem to elicit possible solution from the experts with a regions there of.

The questionnaire is sent to each expert and each asks to provide potential solution. Each expert independently completes the questionnaire, third the responses to the questionnaire are sent to the central location, again in the central location the coordinator transcribes, analyzers, and summarizes be responses and the coordinator again sent the question are along with the summary of responses, to these same experts. After viewing the summary the expert's opinion or the solution may change, it typically triggers new solutions and causes change in the previous solutions and the same issue. Lastly this equation continues, until all the experts agree on a particular solution. So, it is a time taking process, but if you want to get the ideas from the experts we can get it also.

Another is group decision support systems where it is the just like your video conferencing mode. Or a group decision support system is just combined the nominal group and Delphi people may be in different places, people may not talk with one another agent Delphi, but the decision will takes place. Or the particular product or service will be developed group members use in it is a group member it is a technique, where group members the problem is



posed in the computers. And it is sent to all members, all the stake holders should be organizes group members use personal computers to enter or a type responses or replies on the compute computers screen at will either all can be use it simultaneously, or over a period of time.

The assisted software as many provisions or survey pooling voting and analysis of responses with intuitive and advanced graphics depending on the requirement of the task, the software in instantly compiles comments summarize the texts aggregate votes average ranks or disseminate solutions. The final response can flash on the screen of all personal computers at the push of the keyboard. So, this is a simplest technique the idea can be stored and you can give your own idea, without stepping into other persons use and once it is their it will be stored permanently and revision can takes place also and you can revise your ideas. It is with the advancement of technology this can be a more we have all options replacing the Delphi and the nominal group technique.

Thank you.