



Report on **“Research design and data collection”**

A talk on Research design and methodology was done by Dr. Harishanand K S, HOD, Department of Mechanical Engineering on 04/05/2019 as a departmental forum activity for faculties of the department of mechanical engineering.

There are a variety of approaches utilized in this research method design. The purpose of this chapter is to style the methodology of the research approach through mixed sorts of research techniques. The research approach also supports the researcher on the way to encounter the research result findings. In this chapter, the overall design of the research and therefore the methods used for data collection are explained intimately. It includes three main parts. The first part gives a highlight about the dissertation design. The second part discusses qualitative and quantitative data collection methods. The last part illustrates the general research framework. The purpose of this section is to point out how the research was conducted throughout the study periods.



Dr. Harishanand addressing the faculty members during his session



Research design

The research design is meant to supply an appropriate framework for a study. A very significant decision in the research design process is that the option to be made regarding research approach since it determines how relevant information for a study are going to be obtained; however, the research design process involves many interrelated decisions.

This study employed a mixed type of methods. The first part of the study consisted of a series of well-structured questionnaires (for management, employee's representatives, and technician of industries) and semi-structured interviews with key stakeholders (government bodies, ministries, and industries) in participating organizations. The other design used is an interview of employees to understand how they feel about the safety and health of their workplace, and field observation at the chosen industrial sites was undertaken.



Dr. Harishanand presentation on Research Methodology



Data sources

Primary data sources

It was obtained from the first source of data . The primary data were more reliable and have a more confident level of decision-making with the trusted analysis having direct intact with occurrence of the events. The primary data sources are industries' working environment (through observation, pictures, and photograph) and industry employees (management and bottom workers) (interview, questionnaires and discussions).



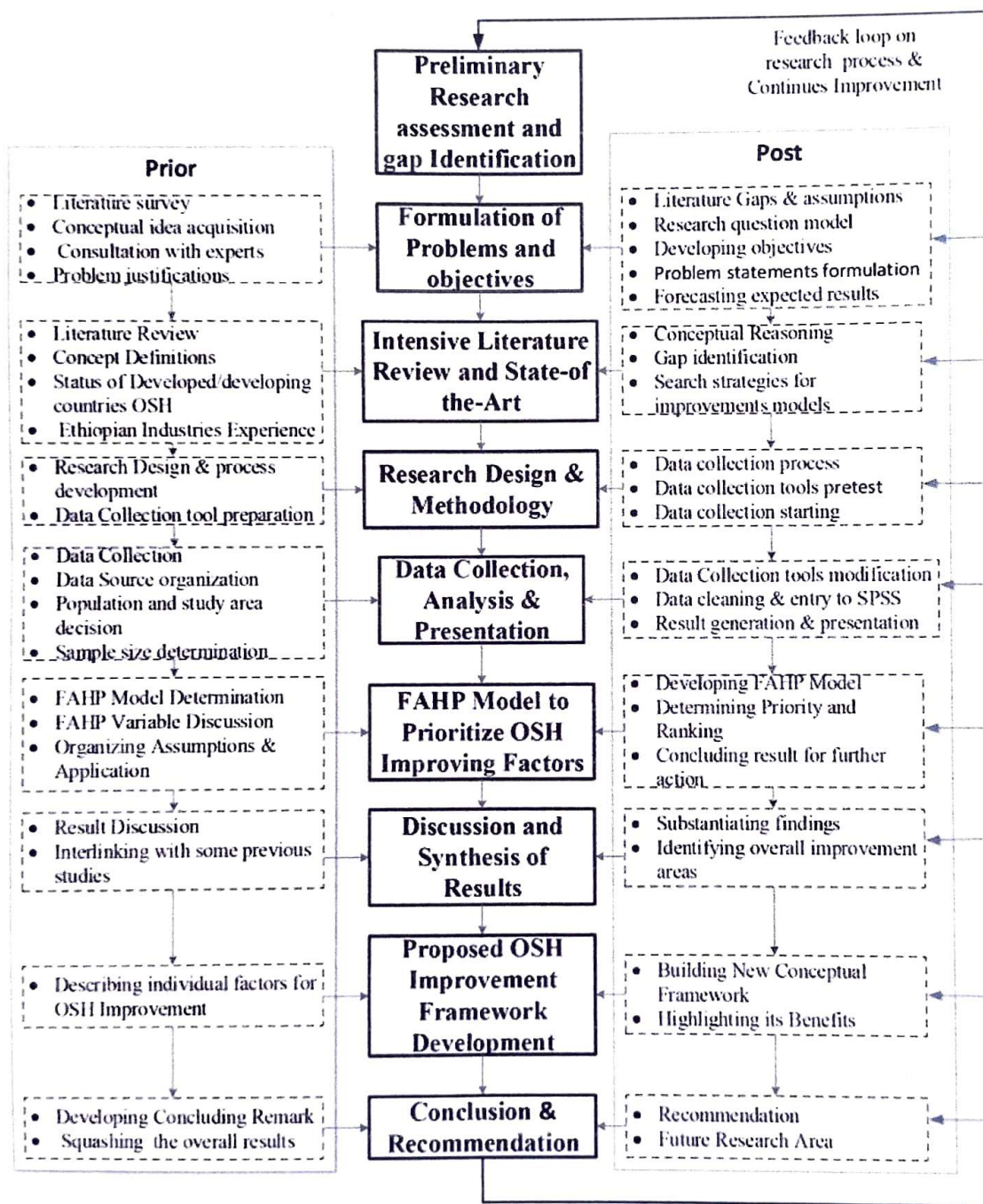
Faculty presence during the session

Secondary data

Desk review has been conducted to gather data from various secondary sources. This includes reports and project documents at each manufacturing sector (more on medium and enormous level). Secondary data sources have been obtained from literatures regarding OSH, and the remaining data were from the companies' manuals, reports, and some management documents which were included under the desk review. Reputable journals, books, different



articles, periodicals, proceedings, magazines, newsletters, newspapers, websites, and other sources were considered on the manufacturing industrial sectors. The data also obtained from the existing working documents, manuals, procedures, reports, statistical data, policies, regulations, and standards were taken into account for the review.



Research methods and processes



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Workplace site observation data collection: Observation is an important aspect of science. Observation is tightly connected to data collection, and there are different sources for this: documentation, archival records, interviews, direct observations, and participant observations.

Data collection through interview: Interview is a loosely structured qualitative in-depth interview with people who are considered to be particularly knowledgeable about the topic of interest.

Data collection through questionnaires: The main tool for gaining primary information in practical research is questionnaires, due to the fact that the researcher can decide on the sample and the types of questions to be asked


Data obtained from experts' opinion: The data can also be obtained from the expert's opinion related to the comparison of the knowledge, management, collaboration, and technology utilization including their sub-factors.

Workplace site exposure measurement: The researcher has measured the workplace environment for dust, vibration, heat, pressure, light, and noise to know how much is the level of each variable.

Instrument	Planned	Actual coverage	Success level
Interview/discussion	15	13	87%
Survey questionnaires	267	189	71%
Observation	20	18	90%
Workplace site exposure measurement	20	20	100%

Planned versus actual coverage of the survey.

Outcome: The talk was beneficial to all the faculties involved in research field. The details related to the data collection and its usage were clearly explained in the session of Research Methodology.


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