World of Work

Teacher Handbook

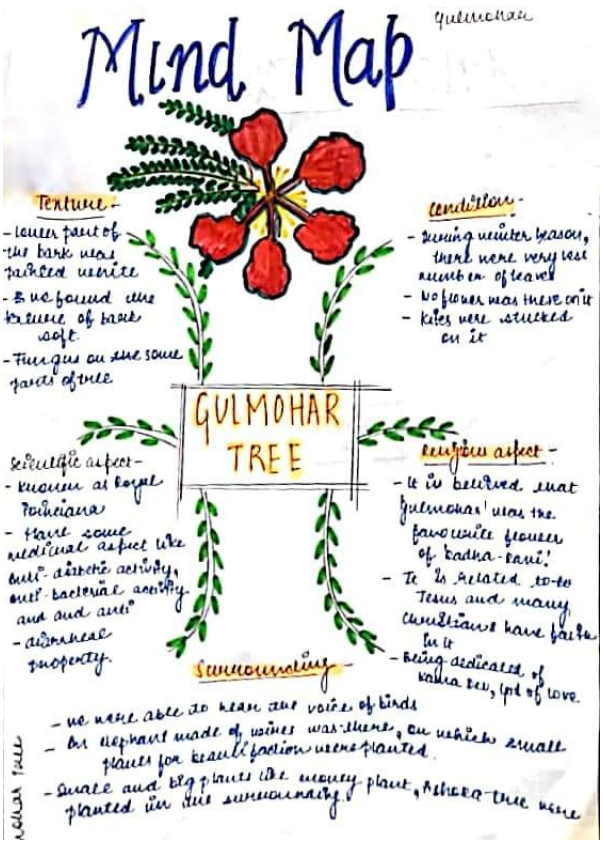
Volume VI:

Research and Critical Thinking Cluster

Module 1: Research and Critical Thinking

Module 2 : Academic Research

Module 3: Marketing Research



Led by

World of Work Grade 9 & 10 is a specialised subject in the School of Specialised Excellence, Delhi Board of School Education, designed by **Centre of Excellence in Teacher Education, Tata Institute of Social Sciences (TISS), Mumbai.** The course aims to introduce students to the world of work and develop skills and perspectives through enquiry, projects, and interactions with industry experts. The full set of course material includes lesson plans, teacher professional development guides, students' and teachers' handbooks, and assessments.

Schools of Specialised Excellence are choice-based schools for grades 9 to 12 that allow students to specialise in their chosen fields of study. The Government of NCT of Delhi established Specialised Excellence in 2021 in order to cater to students who have a demonstrated interest and aptitude in specific domains. Schools of Specialised Excellence are affiliated to the Delhi Board of School Education (DBSE). They are designed as per the philosophy of DBSE that centers around moving away from rote memorisation through integrating assessment into the everyday practice of teaching-learning and using assessments for learning rather than restricting them to only being assessments of learning.

The Centre of Excellence in Teacher Education (CETE) at the Tata Institute of Social Sciences Mumbai (http://bit.ly/cetewebsite) aims to enable Right to Quality Education for all children in India by enabling teachers to respond to diverse and changing needs. Built around the central premise that professional qualified teachers can create lasting impact. The Centre focuses on empowering teachers, improving professional development standards, supporting teachers' education ecosystem and advocating to strengthen policy on teaching and teacher education.

Research at the Centre is on themes of quality in teaching, policy and scaling innovations inclusion, curriculum and pedagogy and Ed Tech. Academic teaching programmes include BEd-MEd (Integrated), MA Education, MA Education (Elementary), MA Education and Technology, doctoral research, short term programmes through blended learning and online offerings to enhance capabilities of teachers and teacher education faculty (www.tissx.tiss.edu). Key field action projects are focussed on improving inclusive teaching learning at schools and employing technology thoughtfully in professional development of teachers. The Connected Learning Initiative (www.tiss.clix.edu) was awarded the UNESCO-King Hamad Prize for the use of ICTs in Education in 2018. CETE received seed support from the Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching. Government of India and TATA TRUSTS.

As knowledge partner of the DBSE for the Schools of Specialised Excellence, the CETE has developed the following six clusters of modules for Grade 9th and 10th specialised subject "World of Work". Each cluster comprises a skill/perspective building module and two/one career modules, detailed in a teacher handbook with an accompanying student handbook.

Student and Teacher Handbooks:
Volume I: Transmedia Storytelling Cluster: Transmedia Storytelling, Journalism, and Content Creation
Volume II: Mapping and Visual Representation Cluster: Mapping and Visual Representation, Geographic Information System (GIS) Analyst, and Urban Planning
Volume III: Working with People and Communities Cluster: Working with People and Communities, and Social Work
Volume IV: Enabling Learning Cluster: Enabling Learning, and Teaching
Volume V: Justice and Constitution Cluster: Justice and Constitution, Lawyering, and Public Policy
Volume VI: Research and Critical Thinking Cluster: Research and Critical Thinking, Academic Research, and Marketing Research

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Introduction

I.I World of Work

One of the components of the vision for Schools of Specialized Excellence (SoSE) is increasing exposure of students to various careers and the world of work. However, career domains today are not straightforward and are becoming exceedingly integrated. Students require a multidimensional and interdisciplinary approach. Separately, the best education globally offers students abundant opportunities for project-based learning, development of higher-order thinking skills and development of soft skills.

The World of Work (WOW) course aims to address all the above requirements during the 9th and 10th grades for the SoSE schools of the Humanities stream. The course is designed as a series of 1 month (16 classroom hours) 'taster' modules that explore different skills and careers in the humanities and social sciences. The modules are designed as a skill module, paired with career modules. Skill modules address a workplace skill that has wide applicability across a range of careers. Each skill module is followed by 2 career modules which are strongly associated with the skill and which develop further on the skill. For example, the Transmedia Storytelling module is followed by Journalism and Content Creation as career modules. Each module is a 16 hour exploration and is delivered via discussions, expert guest speakers ('masterclasses'), digital content, field visits, projects and assignments. These modules are critical in enabling SoSE students to make informed choices and prepare in advance to succeed in their chosen career pathways.

Students learn in various ways in the World of Work course. In developing the modules a priority has been to provide interesting and vivid teaching material including videos and presentations. Classroom discussions are an important part of the session and students learn from each other as well as develop their confidence and spoken communication. Expert guest speakers and field visits offer rare and privileged opportunities to experience a profession. Assignments and project work take them out of the classroom to engage with the environment they live in. These also demand developing time management, creativity, working collaboratively and good presentation skills. All this nurtures students for all round development and at the same time sets them up for success in their chosen area of specialization.

The role of the teacher in the World of Work is challenging and rewarding. The teacher is not an expert in the subject material, even though there is extensive teacher training. Therefore they act more as facilitators for the students' learning. They do need to stretch their boundaries to familiarise themselves with all the skills and careers in the course. Group and individual projects are an integral part of the course and facilitating these and managing the ambiguity inherent in evaluation of projects is a new skill to be learnt. Classroom discussions are a vital part of the course. The teacher must adapt to all these new formats of running a class. They have to give up their tried-and-tested methods of teaching and try on new ones – a humbling experience. The rewards for the teacher are in the tangible growth and development of the students in areas like confidence, presentation and communication. The teacher will also experience significant personal and professional growth in the process. Assessment is an important part of the World of Work. The course is meant to be rigorous and not limited to the level of awareness-raising or exposure. The course delivers specific skills and concepts that the students are expected to understand, internalize and apply. The assessment framework has components of "Knowledge and Understanding", "Inquiry and Exploration", "Critical Thinking and Decision Making" and "Presentation and

Communication". Assessment of each module of WOW will draw from the above set of components and be tailored to the module. Internal assessment of the modules will be usually through the module project,

while the summative assessment could be through a variety of formats including mini-project or different types of sit-down exams.

I.II Overview of the Curriculum

The World of Work course is designed as a series of 1 month (16 classroom hours) 'taster' modules that explore different skills and careers in the humanities and social sciences. The modules are designed as a skill module that is paired with one or more career modules. Skill modules address a workplace skill that has wide applicability across a range of careers. Each skill module is followed by 2 career modules which are strongly associated with the skill and which develop further on the skill. For example, the Transmedia Storytelling module is followed by Journalism and Content Creation as career modules.

The following table gives the full list of modules that will run in the World of Work curriculum.

Skill Area	Career Pathway 1	Career Pathway 2
Transmedia Storytelling	Journalism	Content Writer
Mapping and Visualization	Geographic Information System (GIS) Analyst	Urban Planner
Working with people and communities	Social Work	
Enabling Learning	Teaching	
Justice and Constitution	Lawyering	Public Policy
Research and Critical Thinking	Academic Research	Marketing Research

The first 3 rows show the modules that run in 9th Grade and the next three rows the modules that run in 10th grade.

Below shows the classroom time allocation for the modules and the number of instructional days they will run over.

S.No.	Modules	Suggested time allocation/Instructional days
Grade 9		
	Unit 1: Transmedia Storytelling	16 hours/12 days
	Unit 2: Journalism	16 hours/12 days
	Unit 3: Content Creation	16 hours/12 days
	Unit 4: Mapping & Visual Representation	16 hours/12 days
	Unit 5: Geographic Information System (GIS) Analyst	16 hours/12 days
	Unit 6: Urban Planner	16 hours/12 days
	Unit 7: Working with People & Community	12 hours/ 9 days
	Unit 8: Social Work	12 hours/9 days
Grade 10		
	Unit 9: Enabling Learning	12 hours/ 9 days
	Unit 10: Teaching	12 hours/ 9 days
	Unit 11: Justice and Constitution	16 hours/12 days
	Unit 12: Lawyering	16 hours/12 days
	Unit 13: Public Policy	16 hours/12 days
	Unit 14: Research and Critical Thinking	16 hours /12 days
	Unit 15: Academic Research	16 hours/12 days
	Unit 16: Marketing Research	16 hours /12 days

Note the exceptions to the standard format: In two skill areas, “Working With People and Communities” and “Enabling Learning”, there is a single career module associated with the skill module. In these two cases, the Skill module runs for 3 weeks and the career module for three weeks. In these cases, the skill and career modules are tightly integrated rather than running as individual modules.

I.III Objectives of the curriculum

- To give the students a very wide area of exploration that leaves them with an understanding of the world of work at large. They are also shown interconnections between modules and clusters and realize the interdisciplinarity of the world of work.
- To develop a range of skills (the skills of the skill modules) that will continue to be useful to students in their future irrespective of the specific career path they choose.

- To give the students sufficient information and engagement with skills, careers and workplaces so that they can start a deeper process of focussed exploration in skills and professions as designed for the 11th & 12th grades. In a few cases, the students will have gained enough clarity from the course that they will make a decision on their own about their career goal and independently plan and work towards reaching it.
- To develop their ability to do independent work and thinking, to deliver projects, and work collaboratively.
- To develop skills of critical thinking and creativity.
- To enhance students' presentation skills in different modes and media.

I.IV Curriculum Framework

The course consists of a sequence of skill and career modules. These modules are grouped into related clusters. A cluster will contain a skill module and 2 (or 1) related career modules.

A skill module introduces the students to a particular skill or skill area that is widely required for many careers. In this course the students are introduced to 5 skill areas in the Social Sciences and Humanities which gives them a good range of knowledge. By practicing these skills, students develop themselves with a wide range of skills. Simultaneously they have the opportunity to find out if they have an aptitude for or interest in that skill. Discovering such interest and aptitude can be an enormous boon to the student - if they find a niche they are happy with, they start exploring and developing on their own and the future unfolds with ease and fulfilment. While it is not possible to develop a skill in-depth in the time available, the engagement with the skill does result in concrete learning outcomes.

Career Modules explore a career that is strongly connected to the skill in that cluster. Career modules explore the career from multiple perspectives:

Skills: The career module builds on the work done in the skill module to develop the skill further in the context of the particular career. For example the Journalism career module will take storytelling to the context of Journalism.

Career Roadmap: The career module will talk about way to join that career ie. what subjects to choose for 11th & 12th grades, what degree courses are appropriate, what are the premier colleges, what communities of practice exist, relevant skills to develop etc.

'A Day in the Life': The career module also gives students an idea of what work in that career looks like. Practitioner interactions are a very effective way to do this.

Is this for me?': The various interactions and experiences of the career module helps the student build some evidence for whether this is the direction they want to take. The intention is not however that the student should decide by the end of 10th grade.

Career modules will have sub-areas or may cover a career *area*. For example, Content Creation is a career area which covers careers in Graphic Design, Content Writing, Film-making and more. Journalism is considered a career, but there are a wide range of sub-options by media and types of writing eg. news reporting, news analysis, photography, video journalism etc.

I.V About this handbook

This Handbook is written to provide you with all information, support and guidance you need as you work through World of Work modules. It guides you through the three modules under the Research Cluster to be delivered over a period of three months. It contains the following:

- An introduction to the cluster which explains the role of the skill in the workplace and how it connects with the career modules
- An overview of each module in the cluster
- Detailed lesson plans for all the classroom sessions including teacher handouts and other materials to be used by the teacher in the classroom
- Description of the project and how they are to be transacted in the classroom by the teacher
- Assessment Rubrics for the project
- Design of the Teacher Professional Development sessions that were conducted by the TISS team the first time the module was transacted in the classroom
- The Student Handbook is also attached for your reference. This student handbook contains the handouts and worksheets that the students will use while going through the modules.

Cluster VI: Research and Critical Thinking

Module 1: Research and Critical Thinking

Module 2 : Academic Research

Module 3: Marketing Research

Research and Critical Thinking Cluster Overview

The foundations of research can be found in the very inception of our human civilization. The curiosity of our ancestors led them to seek answers and create the civilised society that we live in today. Without research however, our society would not have evolved to the extent which we see now. Our ancestors' curiosity about their surroundings, the natural phenomena that took place and their quest to seek answers to these mysteries of nature form the sound base of what research is all about. The research cluster seeks to inculcate and nurture this feeling of curiosity in the students and to provide them with a set of strong research skills that will aid their progress in the various careers they wish to pursue.

In the first (skill) module, Introduction to Research and Critical Thinking , students focus on developing research skills and understanding the cycle of research. They are asked to focus upon the kind of biases and perceptions they possess and the manner in which it affects the overall research process and how multiple perspectives exist when we are looking at a similar phenomena. The 'Research and critical thinking' module orients students to research and its different aspects. The module introduces students to research as a skill requiring criticality, systematic, and building arguments with evidence. With examples from everyday life, students will be able to grasp the process of doing research, understand different types of research and research tools, as well as develop a nuanced view of the nature and importance of social science research. The art of observation is emphasised upon in this module, it is not only through our eyes that we observe things but through the means of other senses as well. The later sessions of the module cover research as a cyclic process in which the first step is to identify a problem, develop research questions and subsequently gather data to answer the research questions. The ability to make sense of the data gathered and to understand how research in itself varies for each discipline such as social science or natural sciences are some of the other aspects that are focused upon in this module. At the heart of this cluster lies the tenacity to throw light upon the basic human nature of asking questions and seeking answers to the various phenomena we see around us.

Academic Research is the first career module in the Research cluster. It is the most widely known form of research forming an essential part of the discipline. It focuses on the purpose of creating knowledge, many of the key advancements in the form of vaccine development, industrial revolutions and modern computers can be traced back to the field of academic research. The module in essence thus aims to familiarise students with the process of academic research and the manner in which it is carried out in the field of social sciences. Students will also explore various research papers and understand the eccentric elements of it. The interlinkage between research and policy making is also one of the components that the module will explore.

Marketing Research is the other career in the Research cluster. Marketing research has predominantly become essential as more and more businesses have started to grow and compete with each other. Marketing research essentially allows us to build strategies, improve communication and efficiency in addition to cost effectiveness. With the help of marketing research, companies can better understand the needs of the consumer, recognise the target audience and attract potential customers. There are multiple advantages of why it is essential for an organisation to conduct marketing research thereby making it a lucrative career option. In this module, students will be familiarised with the concept and basics of marketing research and why it is essential in todays' fast paced environment. All organisations, large and small, cannot survive without marketing. The marketing department may be small or large, formally defined or otherwise, but it is a critical function within the organisation. With larger and more complex organisations, marketing assumes an ever more important role. Students today need to be aware of what marketing is, and how research within and about the marketing department is conducted. Furthermore, it

is important to have students be acquainted with the related techniques and above all, they need to develop an understanding of how their current curriculum helps them become better working professionals within the domain of marketing research. The module aims at developing an interest in the skills needed to be a marketing research professional. Students are introduced to the processes within a marketing department, defining the relevant target group and coming up with an appropriate sample for analysis. Different methods of conducting the research such as qualitative and quantitative are also focused upon within the module.

Cluster VI Module 1: Research and Critical Thinking

Credits

Initial Module Conceptualization, Authoring and TPD sessions:	Dr. Bindu Thirumalai, Assistant Professor, CETE, TISS
	Ms. Vinitha Mariappa Casaba, Ph.D Student, CETE, TISS
	Ms. Reema Govil (Research Consultant, TISS)
Research and Coordination:	Mr. George Jose, Research Assistant, CETE
	Ms. Serah George, Research Assistant, CETE
	Ms. Tanya Mittal, Program Manager, CETE, TISS

1.1 Introduction to Research and Critical Thinking

In the age of digital convergence, this module on Introduction to Research and Critical Thinking seeks to nurture the spirit of curiosity within the students. The most fundamental aspect of carrying out any research is the ability of the researcher to observe and question the nature of things around them and seek answers to various kinds of phenomena. At the heart of any research thus lies the curiosity to seek answers and understand a situation. The module further focuses on introducing and developing the key processes that are required to carry out any research. On hand it highlights the commonalities between the research carried out in various disciplines but at the same time also focuses on bringing out the differences between research being done in different disciplines, for instance in natural sciences and the one for social sciences.

Research and critical thinking have emerged as a powerful tool in the 21st century and a range of businesses and organisations are able to thrive on the basis of strong research findings only. It not only allows an individual to understand various social phenomena but is also used as a tool for solving social issues. The interdisciplinary nature of the module allows the students to implement the skills learned in a variety of career domains and not just being limited to marketing and academic research.

The focus areas of the module are:
- Understanding the skill of observation
- Exposure and understanding research as a systematic process
- Understanding and thinking from different perspectives
- Exposure to the nature of research in various disciplines

Prior Knowledge required for this module:

- Prior knowledge of, and fluency in English till at least Grade 6 level is recommended.
- Prior exposure to articles, information pertaining to different inventions and findings in various disciplines, popular research being done especially in the field of social science.
- Use of search engines

Student Learning Outcomes:

1. Students will be able to recognize research as a systematic process.
2. Students will understand how a research study is planned and implemented.
3. Students will understand the process of data collection and analysis.
4. Students will understand the difference between natural science and social science research
5. Students will learn how research happens on the ground/in the field.

Concepts in the module:

1. Research is a systematic process involving a series of predetermined steps.
2. Bringing in different perspectives into our thinking to make critical decisions
3. Understanding the concept of primary and secondary data, tools of data collection and how to design them.
4. The manner in which social science research differs from natural science research.
5. There is a difference between facts and opinions, facts are verifiable in time and space whereas opinions are informed belief and arguable.
6. Identification of a problem and developing appropriate research questions around the same.

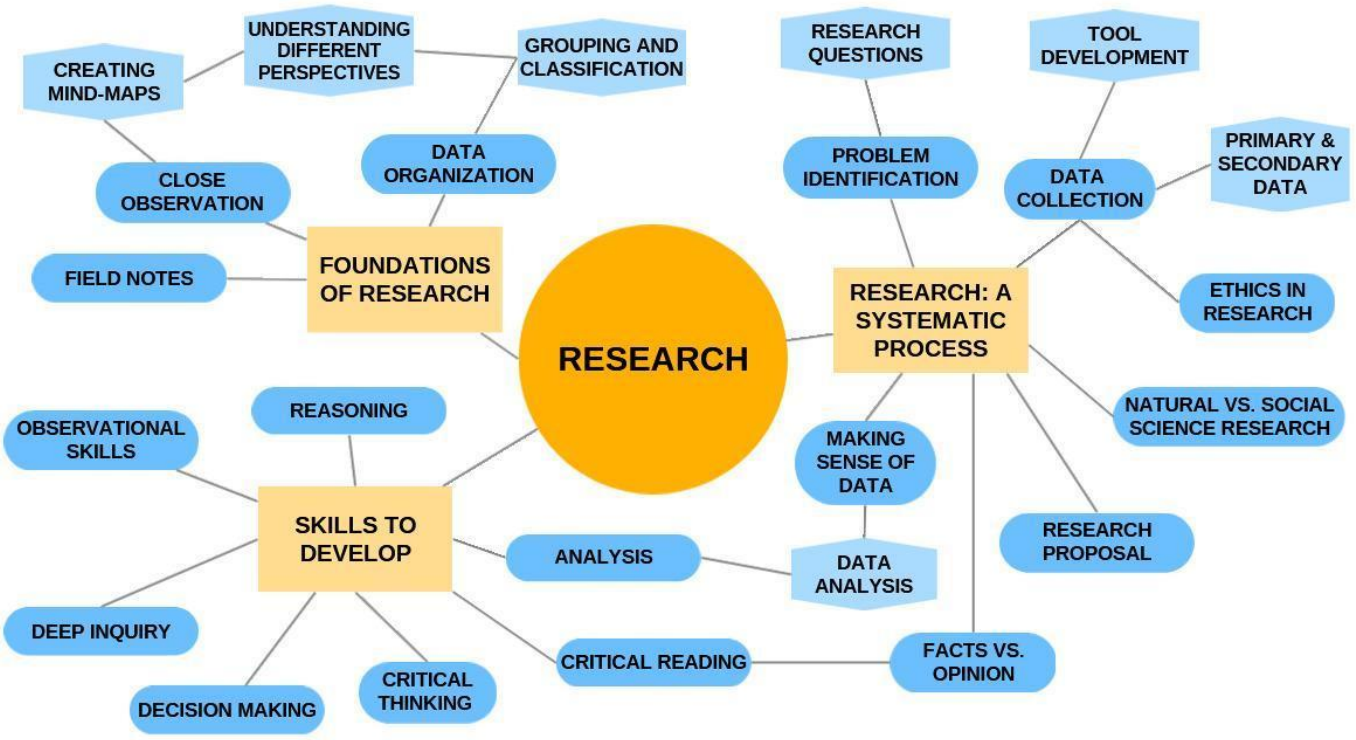
Recommended Texts:

1. Social Science Research: Principles, Methods, and Practices by Anol Bh((attacherjee

Social Science Research: Principles, Methods, and Practices

Module Overview:

Each week of the module will focus on a different theme. These themes are:



Module Assessment:

We will be assessing students on the following:

- Knowledge, understanding and application of the concepts
- Exploration and inquiry of the research problem identified
- Critical thinking and decision making with respect to creating a coherent data collection plan covering all components and relevant to the research questions identified.
- Organization, presentation and communication of ideas in a coherent manner

Formative (Unit) Assessment of the module will be through the module project. The module project will test the following from the broader set of Assessment Objectives for the World of Work course:

Summative Assessment of the module will be through a written exam.

Formative Assessment		**Summative Assessment**	
Assessment Objectives	**Competencies**	**Assessment Objective**	**Competencies**
1.Inquiry and exploration	1.1 Identification of the problem for research and demonstrating a substantial understanding of the problem/issue at hand and describing why the research is important in sufficient detail (inquiry) 1.2 Creating research questions which are relevant, specific, and Researchable (exploration)	**1.Critical Thinking & Decision making**	1.1 Identify and use perspectives in understanding situations and issues (Critical Thinking) 1.2 Use creativity and original thinking in generating solutions (Creativity) 1.3 Adapt the concepts learnt in new and diverse contexts (Adaptive) 1.4 Interpret and comprehend self in relation to skills and careers (Awareness and Reflection)
2.Critical thinking and decision making	2.1 Demonstrate clear and confident presentation of thoughts and ideas (Coherence) 2.2 Ability to use multimedia and multimodal forms of communication effectively to demonstrate the findings (Versatility) 2.3 Ability to iterate and incorporate feedback to improve/refine the work (Iteration)	**2.Knowledge & Understanding**	2.1 Demonstrate command of the specialized vocabulary of specific skills and workplaces (Knowledge) 2.2 Summarise concepts about the process of (Understanding)

		3. Inquiry and exploration	3.1 Able to demonstrate a strong understanding of the problem/issues identified 3.2. Provide different and innovative sources of data collection and the methods to be deployed for the same
		4. Presentation and Communication	3.1 Demonstrate the ability to organize contents in a proper structure 3.2 Able to provide proper introduction and conclusion. 3.3 Ability to communicate the ideas clearly and in a coherent manner and be able to provide the connections between different ideas 3.4 Attention is given to details.

*SA will assess all the AOs to varying degrees

1.2 Lesson Plans

Week 1: Close Observations and Critical Thinking

Objectives of the week

Important Concepts

- Close observations
- Presenting data through mind maps
- classification

Learning Standards

During these sessions, students will have the opportunities to:

1. make close observations and will be able to represent their observation using mind maps
2. recognise and appreciate different perspectives
3. appreciate different ways of classification
4. write a critical review of a video clip

Summary

This segment of the module will introduce students to the skill of observation which is one of the most crucial aspects of a research. Students will learn how to do close observations and present the data gathered in the form of mind maps. The following week will also be focusing upon understanding the manner in which different perspectives influence the research process and how to think from these different perspectives while carrying out a research process.

Lesson Plan: Week 1 Day 1

Close Observations and Presenting Data Using Mind Maps

Classroom Inquiry Process	**Resources**

Lesson Aims:
● Students will be able to carry out close observation using all five senses - smell, sound, seeing, touch, and taste
● Students will be able to map observation data using mind maps
● Students will be able to recognise gaps or silences in observations
 	
Note - Teacher to inform students 2 days prior that each student should identify a specific tree in their neighborhood for doing close observation. Students are given a template to record their observations. Students will note down what they are able to see, touch, smell, hear and taste *(It might not be possible to fill all boxes and that is alright)*
 	
They will have to bring as many objects related to that particular tree to class *(bark, seed, leaves, nests, dead insects, materials/ objects of interest near the tree etc*).
 	
Introduction about the module (5 min)
- The teacher can tell students that in this module we will be learning skills of critical thinking and research. And in the next two modules, the students will dive deep into academic and marketing research.
 	
Activity 1: Discussing the observations made by the students (15 min)
 	
- The teacher will initiate a discussion about the objects collected by the students.
  - Which tree did you observe?
  - From where did you collect it? etc.
 	
Smell - describe the smell - fragrant/ pungent
See - colours/height/width/shape and size
Sound - recall sound of the tree (when in strong winds, light winds, in rains, when under a creaking of bamboo, whoosh of the grass, rustle of the leaves) (also recall sounds of friend / foe inside, under, within around trees)
Touch - make rubbing of barks, pods, fruits, leaves and capture the texture of the objects. (could be things found near a tree or on a tree eg. swing, cloth)
Taste - sour, sweet, more / less/ smelly taste/ medicinal
 	
Teacher can show students some observation notes made by nature researchers on the field - https://www.instagram.com/p/CiSS2zjsXSg/
	Template for observations - printout to be given to each student
	
	w1d1_Nature Journal Template.pdf
	
	For teachers to understand mind maps - How to Mind Map with Tony Buzan

Activity 2 (40 min)

A. **Students make a mind map to capture all the data that has been collected**
B. **Students present in groups their observations and findings**
C. **Note the differences**

Activity Description:

Teacher can show students an example of a mind map - w1d1_mindmap1.jpg

and discuss how it is an effective tool for making observations or brainstorming on a problem.

Group forming

Students form into groups of five. Each group chooses a particular tree. They work together to create a mind map to record their observations. The groups can share their work with the class and put it up on the pin up board.

Teacher to introduce the following prompts and help students revise their mind map

Teacher Prompt- The tree, what is this tree like, what's within, what's on, what around, what's imagined of this tree. Teacher can use the below five ideas to encourage children to explore and anchor their observations :

1. Dreams & desires about the tree
2. Friend or foe
3. Rituals & seasons
4. Stories & facts
5. Interactions - people/places/animals/birds

Teacher to conclude, trees are an environment by itself, and also a part of a larger environment. And emphasise that there are many things you can observe using your senses, the familiar and the unfamiliar. To get an in-depth understanding beyond sensorial observation one needs to engage in deeper inquiry.
Teacher to prompt students to find out if these trees are native. Students can look at books to find out this data. (note down region, time period). (this can be connected in the next session)

Materials the students will need

1. A4 size bond paper,Chart paper, newspapers
2. Drawing pencils
3. Eraser and pencil sharpener
4. Ruler
5. Felt pens, crayons, poster colours with brushes etc.

Additional resources that can be used in class - Ears to the Ground - Western Ghats

At the end of the activity, show students the video that explains how mindmaps come in handy to create research ideas -Mapping Your Research Ideas (till 2:00) ***Note*** *: Instruct each student to bring 5 favourite objects to class for the next session(size, not more than your palm).*	(instruction for teacher : Teachers can use this to indicate interaction of natural habitat, close observation of a place can present interaction of animals, birds, machines, people and this in-turn can inform us of shifts in the landscape.)

Lesson Plan: Week 1 Day 2

Different Ways of Classification

Classroom Inquiry Process	Resources
Lesson Aims: ● Students will learn classification ● Students will be able to appreciate different ways of classifying **Recap (15 min)** **Recap of previous session** 1. To understand close observation and learning of sensorial aspects of a tree and its surroundings 2. To understand mind-mapping 3. Recognise different ways of interpreting your and your friends' data (Facts/ stories/ beliefs/ myths all form our understanding) 4. What are the key critical understandings from the session? **Prompt questions** 1. How do we use all this information to critically understand Trees/nature ? 2. We understand that we all look at things differently, and many times we miss out on observing 3. All ways of seeing will have gaps, we need to learn and train ourselves to observe and investigate using different perspectives. **Activity 2- Grouping and classifying using attributes (45 min)** **Activity description** 1. Each student brings five different objects of their choice to class. This can be their personal objects too. (palm size or smaller objects) 2. Form into groups of five. 3. Each group needs to appoint a scribe and timekeeper. 4. Each member gets 30-60 seconds to place an object and give a reason for grouping their objects. 5. Reasons/categories not to repeat (scribe to alert, if repeated). *Role - Scribe to write down details about the object and reason (as stated by the participant)* *Timekeeper - for the whole group - time management for the activity* *Each member, taking turns, places one object at a time on the table, the next member adds another object and states the reason/attribute for grouping or not. (eg. colour, size, shape, use of the objects)*	

Eg. 1 - clip, 2 - paper and groups with a (stationary objects) , 3 - comb (starts a fresh group as it cannot be grouped with stationary) b), 4- flower to a) (flower and comb can be grouped if the colour is same) *Play again and record the reason for grouping and get deeper into classifying.* After all 25 objects are on the table, Repeat the process and record the reason. This activity is time-bound. Each group can have two turns at this activity. Teacher can nudge them to look at deeper attributes (qualities) for classification. **Teacher connects** this to trees and asks the students to quickly use their tree observation and come up with qualities of a tree and classify in a similar fashion. (eg. leaf shapes, hues of green, texture of the bark, edges of the leaf, smell, venetian, aerial roots, fruit types, smell, latex in few trees) Following this, each group presents their different ways of classifying. Reflect on the process: 1. List reasoning under different groups 2. Is there a pattern emerging based on attributes of shape, size, colour, and structure)? 3. Note down any new reasoning that has come up in classifying. Teacher to conclude that physical attributes are straightforward to classify. For example, in science classes, students might have learnt how to classify animals and plants based on scientific principles. But there are complex ideas which are not easy to classify . For eg. 'How will you classify a tree as native?' (who/what is native?) (Ref. to TPD for eg. on native trees) Teacher to share the article :Classification : It is critical to plant the right trees: Pradip Krishen In research, you will have to bring in critical thinking to classify your observations.	**Article Reading** To Plant The Right Tree Classification : It is critical to plant the right trees: Pradip Krishen

Lesson Plan: Week 1 Day 3

Critically understanding different perspectives

Classroom Inquiry Process	Resources
Lesson aims: 1. Students using the 4 W's and one how (4W+ H) to close observation while watching a film clip 2. Student to recognise and understand different perspectives used in the film **Activity 1 :** Critically watch a film clip and understand different perspectives **(60 min)** Students to watch the clip - (15 mins) https://p.dw.com/p/4ACbn?maca=en-EMail-sharing and read the article in groups of 4 or 5. (15 mins) Following this a class discussion to be carried out using the prompt questions and working on critical review worksheet (30 mins) **Student Prompts** **W**hat is happening in the film clip? What is the film presenting and saying? **W**ho are we talking about? Who are the characters in the clip? **W**hen - when is this interaction happening **W**here - do we find such interactions in other areas (list a few areas this can happen esp in relation to trees, nature)? What is the film not addressing in relation to the topic? How do you understand this presentation of the characters? Is this problem prevalent only in New Delhi? Students have to write a short critical review from their reflections after watching the clip and reading the news article. And share with the class. Class discussion to bring out : 1. What is the central issue that is discussed? 2. What connections can we make from this clip and reading the news article? ● Existence and coexistence of man, animal & nature	**Critical review** worksheet available in the workbook. The worksheet can be used to review the video and article, individually by students after discussions. **Critical review worksheet :** Critical Review Worksheet (for Session 3 of week 1)

● Interaction & Conflict - man & animal, causes/ reasons 3. What different perspectives are you able to see in the clip –of the state, the animals, people and religious needs? 4. What are the different policy measures proposed to solve the issue? 5. Do you see a pattern in this conflict? Can you state your reasonings for the pattern? Teacher to conclude : *At this stage, the idea is to introduce students to close observation, making field notes, recording of observation data and recognising different ways of classifying and perspectives that emerge in the process. If possible, we must be able to, through data, present to the class that there could be gaps in data collected (exact colour, shape of the leaf, structure) and such gaps can be captured by asking detailed questions about the topic (pls use Field guide book). If possible we must highlight how our opinions, beliefs, superstitions also form part of our observation and how to recognise it.* *These skills form the foundation for good research.*	

Week 2: Introduction to Research

Objectives of the week

Important Concepts

- Introduction to research
- Steps in the research process
- Developing research questions
- Data collection in research

Learning Standards

1. Students will be able to understand that research is a systematic process and identify the steps in the research process.
2. Students will identify a research problem and develop research questions.
3. Students will learn how to collect data for research

Summary

Students will be introduced to research as a systematic process involving pre determined steps and having several components. They will also learn about how to frame the research questions properly in order to articulate the problem identified in a concise manner.

Lesson Plan: Week 2 Day 1

Introduction to research and understanding the research process

Classroom Inquiry Process	**Resources**
Lesson Aim - Students will be able to understand that research is a systematic process - Students will be able to identify the steps in the research process Session Details **Activity 1. Recap of the previous session (5 min)** (a) The teacher asks 3-4 students on their key takeaways/learnings from Week 1. (b) The teacher adds in case anything significant has been missed out. **Activity 2. What is research? (15 min)** Teacher helps the students understand the difference between search and research by asking students the below questions: If you are to purchase a laptop/air purifier or any other equipment, how will you make a decision? What features will you look at? Will you call this process of arriving at a decision as search or research (why/why not) Play the video - What is research? Teacher can ask students what they understand by research after watching the video. Teacher can conclude by saying that research is a rigorous and systematic process to create new knowledge. The observation and classification exercises we did in the first week are also part of research. Every discipline has its own specific methods to collect data, but the core nature of the research process is the same. Research is not only restricted to academic disciplines but also used for marketing research which the students will learn about in the 3rd module of this cluster. **Activity 3. Understanding Research Process through an example (30 min)** The teacher could use the following probes to stir the interest of students: "How many students like sports/play sports/see sports on TV? (b) Do you know when the national sports day is celebrated in India? (c) How many of you have seen/heard about the recent Commonwealth Games that took place in July/Aug? (d) Who are your favourite sports personalities? (e) What sport would you like to compete in if you were participating in the Commonwealth Games/The Olympics and why?	

Teacher will discuss the following example with the students.

A headmaster in a school in Jangpura, Delhi was inspired by India's recent achievements in the Commonwealth games. The headmaster himself was an athlete in his school days but did not pursue it as a career. He wants to promote varied sports and encourage every student to play and those who are talented/have the potential to think about taking sports as a professional career. He wants to change the mindset of students and parents about sports as a profession.
But he has a few questions to which he is seeking answers:

(1) What are the factors that motivate students to take up sports?
(2) What support do students need to choose sports as a profession?

After presenting the example, the teacher asks the students - *How will you find answers to these questions?*

(Student could give any of the following answers:

(a) Their own opinions/thoughts of students/others
(b) Personal experiences/Experiences of friends/family members
(c) Interviews of sports personalities
(d) Documentaries/Movies/Blogs
(e) Search on the Internet
(f) Books/newspapers/magazines)

NOTE - The objective of this activity is for the teacher to lead students from a layman's conception of research to an understanding that research is a rigorous and systematic process)

Teacher then asks students if research is simply finding answers from anywhere or is there something more to it (structured process).

Let us find out how a researcher approaches a problem!

Student Activity
Students are divided into groups of 4-5 and given a cut-out of the different steps in the research cycle which they have to arrange in the correct order. Students have to connect the steps with the case study and describe briefly what will entail in each of these steps, to find the answer to the research questions

Once the students have done the activity in groups, they present their work, then the teacher will conclude the session by presenting the cycle of the research and explain that research is a systematic and rigorous process using the Poster.
The teacher can mention that these steps would be discussed in detail in the Academic Research Module Session.

- Students have to write the steps of the research process in their workbook.

Cut-outs to be printed and given to each group
w2d1_steps in a research process

Ask students what is the research problem and research questions in the example of the headmaster of Delhi school. Ask students where they will look for research already done on the topic. What will be the data collection methods? Inform students that for their internal assessment, they will have to make a research proposal which will include steps from 1. Identifying the problem/topic to Developing a plan to collect data **Activity IV. Reflection exercise (10 min)** *1. What new ideas did you learn from today's session?* *2. Is there any concept you are still unclear about?* *3. Is there any topic on which you want more information?*	Poster with the steps in the research process w2d1_Steps in the Research Process Infographic.pdf 

Lesson Plan: Week 2 Day 2

Identifying a problem and developing research questions

Classroom Inquiry Process	**Resources**
Lesson Aims - Students will be able to identify a problem and develop research questions - Students will create a mini research proposal Session Details **I. Recap of the previous session (5 min)** (a) The teacher asks 3-4 students (random order) on their key takeaways/learnings from previous session (b) The teacher adds in case anything significant has been missed out. ***II. Group Activity: Problem Identification (15 min)*** - *Students are divided into groups of 4-5* - *The teacher shows students a set of photographs and asks them what they think the picture is depicting. Students will write what they think the problem is.* - *The teacher facilitates a discussion around each issue. (Refer to the provided handout for teachers for detailed discussion prompts)* ***III. Formulating Research Questions (35 min)*** - *Teacher tells students that we do research to create new knowledge that will help in solving problems. Once we have identified a problem, the next step is to develop good research questions.* - *Teacher demonstrates formulation of a research question through an example (what is a strong/weak research question)* - *Teacher can show this video - https://www.youtube.com/watch?v=LWLYCYeCFak* *Each group is given a theme and is asked to formulate as many research questions as they can using the research question generator in the workbook. (link given)* - *Students discuss their research questions with the class, seek feedback from the teacher and fill in the first two parts of the research proposal template in their workbook.* ***IV. Reflection exercise (5 min)*** *(a) What did you learn in today's session?* *(b) Is there any concept you are still unclear about?* *(c) Is there any topic on which you want more information?*	Handout for teacher to guide the activity w2d2_handout for teacher for problem identification Resource for teacher - Writing Strong Research Questions | Criteria & Examples Research question generator - w2d2_Research question generator

Lesson Plan: Week 2 Day 3

Data Collection in Research

Classroom Inquiry Process	Resources
Lesson Aims - Students will be able to understand concepts such as primary & secondary data - Students will be familiarised with the tools of data collection - Students will be able to design tools for collecting data **Session Details** **Activity 1. Recap of the previous session (5 min)** (a) The teacher asks 3-4 students about their key takeaways/learnings from the previous session (b) The teacher asks students what is the next step in the research process after formulating the research question. *(the next step is developing a plan for data collection)* **Activity 2. Concepts related to data collection (25 min)** Post the Recap, the teacher asks the students if they have been part of any activity where they were required to collect data in any form. She/he asks the ones who have responded with a YES to share more details by answering the below questions: *a) What was the purpose of data collection?* *b) Whom was the data collected from?* *c) How was the data collected ?(process)* *d) What was the nature of data (qualitative/quantitative)?* Drawing from student responses, the teacher moves ahead to familiarise/get students with the following concepts/terminologies through discussions. **I. Primary & Secondary Data**: Primary data is first-hand data collected by the researcher using interviews, surveys etc. and secondary data is using data that has been already collected (such as the census data students learned in the policy module). Eg.of Primary & Secondary Data: Primary: Interviews, surveys, Focus Group Discussions (FGDs - these are discussions done with a group of people), polls Secondary: census, books, journal articles, blogs, government reports, news articles Video resource - Primary vs Secondary Data 101 (till 1:43) *Note - these topics will be revised again in academic research module*	Primary vs Secondary Data 101

II. Tools of Data Collection: tools used for people to share their perceptions/opinions, experiences etc.

(a) Interviews: these are carried out one-to-one, and questions are open-ended
(b) Surveys: can be carried out with a large number of people, questions are largely close-ended (i.e. there is a set of responses to choose from)
(c) Focus Group Discussions: these are carried out with groups of people. The ideal number for a group discussion is (5-10), and questions are open-ended

<u>Important things to keep in mind while developing your tools:</u>

- *Ensure the questions in your tool answer your research question/problem identified*
- *Pilot the tools before you collect data with the actual participants.*
- *Ensure that you do background research about the context of your participants,*

Activity 3. Group Activity: Tool Development (25 min)

I. The teacher asks the students to create groups of 4-5 depending on the class size.
II. The students are given the following theme for creating an interview schedule (schedule means the questions that will be asked in an interview):
Parental support for pursuing sports as a career.
III. Each group will create four questions.
IV. Each group then discusses the questions that they have penned down.

Ethical considerations in Research: *(important things to keep in mind when collecting data)*

In social sciences, you engage with human beings, so there are many things to be mindful of while collecting data. The teacher can ask students what key points should be kept in mind while collecting data.

After taking responses from students, it will be ensured that the following points are covered:

(a) The purpose of the study and the role of the participant to be communicated clearly to the respondent.
(b) Full consent of the participant should be taken prior to the study. This includes voluntary participation of the respondent, permission to record the respondent, use of data for analysis and reporting.
(c) Participant names to be kept anonymous for the purpose of data analysis and report writing.
(d) Confidentiality of the participant data to be maintained.
(e) While using secondary data, you should give credits/cite the other researchers

V. Reflection exercise (5 min)

1. What did you learn in today's session?
2. Is there any concept you are still unclear about?
3. Is there any topic on which you want more information?

Week 3: Nature of Social Science Research

Objectives of the week
Important Concepts:

- Difference between natural science and social science research
- Facts and Opinions
- Data in Research

Learning Standards:

During these sessions, students will have the opportunities to:

1. Students will understand the difference between natural science and social science research
2. Students will be able to critically read a text and differentiate between facts and opinions
3. Students will be able to make sense of infographic data that is presented in newspapers etc

Summary:

This segment of the module will introduce students to the nuances of research in the field of social science and natural sciences and the inherent differences between the two. They will also be exposed to the critical reading of a text and differentiating between facts and opinions as a concept. Students will also be focusing upon the process of data collection in research, its types and designing the tools of data collection.

Lesson Plan: Week 3 Day 1

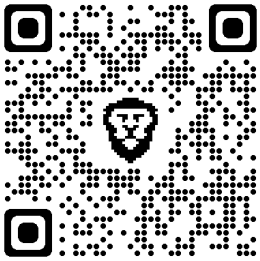
Difference between natural science and social science research

Classroom Inquiry Process	**Resources**
Lesson Aim - Students will be able to distinguish between natural science and social science research Session Details ***I. Recap themes of the previous session (5 min)*** *(a) Recall that week 1 was an investigation around trees* *(b) Recall that week 2 was an investigation on the theme of sports, sports persons and motivation to become professional sports persons* ***II. Activity 1: Research on the theme of trees and Sports (25 min)*** *Watch this video **Natural sciences vs social sciences.mp4** and discuss the following questions* *(a) Do you see any similarities related to research about trees versus research related to motivation to take up sports?* *(b) Do you see any differences related to the investigation (research) about trees versus the investigation related to motivation to take up sports?* *Students fill out their workbook* ***III Activity 2: Research Process on the theme of trees and Sportspersons (30 min)*** *Group Activity: The teacher divides them into groups of 4-6 students.* *a) Recall the research processes, what do you think will be similar and different when you are researching 1) trees 2) Sports persons/activities* *b) Each group writes down differences and similarities for each of the steps in the research process* *c) Think about what kind of questions can be researched with respect to* *i) Trees* *ii) Sports persons/activities* *d) Any random group will present their work and the teacher facilitates sharing of work done by group. The teacher can conclude the session by generalizing the points from the group activity.*	Natural Sciences vs Social Sciences

Lesson Plan: Week 3 Day 2

Facts vs Opinion

Classroom Inquiry Process	Resources
Lesson Aim - Students will be able to identify facts and opinions and distinguish between the two. - Students will be able to critically read a text and identify the facts, opinions and claims made. Session Details **I. Recap of the previous session (5 min)** (a) The teacher asks 3-4 students about their key takeaways/learnings from Session 1. (b) The teacher adds in case anything significant has been missed out. **II Activity 1 Facts and Opinions (30 min)** Teacher discusses with the whole class what facts and opinions are with some general examples, students can work in groups or this could be a whole class discussion W3D2 - Activity 1 Facts and Opinions .docx **III Activity 2 How to critically read a text? (25 min)** Students are divided into pairs and read the article and write out or highlight the facts and opinions in the article (List of articles:- (a) Career as a Sports Person in India | TheHigherEducationReview (b) Technology and sports nutrition - Sportstar	**Worksheet Link - Facts and Opinions** Answer key for facts vs opinion worksheet - W3D2 Facts vs Opinions_answer key

 (c) 'Lack of evidence' that popular sports products work - BBC News  Teacher discusses in whole class with students	

Lesson Plan: Week 3 Day 3

Making Sense of Data

Classroom Inquiry Process	**Resources**
Lesson Aim - Students will be able to analyze research critically - Students will be able to do some basic data analysis with respect to the research Session Details ***I. Recap of the previous session (5 min)*** (a) The teacher asks 3-4 students (random order) on their key takeaways/learnings from Session 2. (b) The teacher adds in case anything significant has been missed out. ***Activity 1: Analyzing a research? (15 min)*** Watch the the video and discuss the following questions: Virat Kohli In A Candid Interview With ET Now | Exclusive The teacher can mention that we have watched this video earlier during the journalism module. At the time, we focused on the kind of questions the journalist was asking Virat Kohli. This time we will be discussing this video from another perspective. Then the following questions will be asked: 1. Can what Virat Kohli discusses in this video be called research ? What is this research about? 2. How did Virat Kohli do this research ? 3. Who were the participants of this research? 4. How was data collected in this research ? 5. What were the results of this research ? Do you think the results are generalisable for all Indian people ? Why ? 6. Why was this research done ? Who benefits from this research ? Is this research relevant for all sections of society? If you were to do a similar research in your community , what kind of questions would you ask and who would you ask these questions to? **Activity 2: Data Analysis (30 min)** The students will be asked to read the news article about the research conducted by Kohli and PUMA. The link for the same is: Study reveals 1/3 of India did no physical activity in past year; skipper Virat Kohli is not too happy - The Economic Times	Interview with Virat Kohli: Data analysis worksheet W3D3_ Activity 2_Data Analysis.docx

Then they will be asked to fill the worksheet related to the research. *Note - teacher to tell students that data can be both quantitative and qualitative, i.e. Data is not just numbers but the descriptive answers you receive during an interview, of the detailed observation notes you make are also data in research. Students will learn more about this in the next module.* **Activity 3: Introduction to Project (10 mins)** 1. The teacher introduces the assignment for the module and explains the rubrics and guidelines. 2. The teacher will give students the research proposal worksheet and introduce them to the project. 3. The teacher can suggest certain broader themes for the students to choose from, like climate change, pollution in delhi, education etc. 4. Students have to individually fill out the research proposal template and submit it at the end of the module.	Research proposal worksheet to be printed and given to each student. Research proposal template

Week 4: Interactions with Researcher

Objectives of the Module

Important Concepts:

- Research process
- Research proposal

Learning Standards:

During these sessions, students will have the opportunities to:

1. learn how research happens on the ground
2. write a mini research proposal

Summary

This segment of the module will allow students to interact with various researchers. In the previous lesson plans they have learned about the types of research methods i.e. qualitative and quantitative research methods. The following week will provide them with the opportunities to interact with researchers who have been involved in the process and through their experiences the students will learn about the core concepts and nuances of each of the research methods and how it is performed on the ground. They will also create a mini proposal of their own in order to implement what they have learned so far within the module.

Lesson Plan: Week 4 Day 1

Listening to the research process of a researcher

Classroom Inquiry Process	**Resources**
Lesson Aims: Students will learn the research process from the experience of a researcher. **Activity Description:** Teacher to give a brief overview of the video and play the video - w4d1_Interview with researcher_jyoti bawane.mp4 *Teacher should pause at relevant places and clarify doubts of students as required. Teacher can use the document given in the resource column to identify important places where the teacher should pause and some prompt questions that teacher can ask in between.*	

Lesson Plan: Week 4 Day 2
Interaction with a researcher

Classroom Inquiry Process	Resources
Lesson Aim: ● Students will learn more deeply about the research process through an interaction with a researcher ● Students will understand the skills needed to become a good researcher **Activity Description** Students will have an interaction with a researcher where the researcher will share their research processes and life journey. There will be a Q/A session at the end.	

Lesson Plan: Week 4 Day 3

Internal Assessment - Filling a research proposal template

Classroom Inquiry Process	**Resources**
Lesson Aim: ● Organizing and presenting ideas in a coherent manner ● Write and submit the research proposal **Activity 1**. **Finalizing the research proposal (45 min)** Children go through the research proposal they have written and ask the teacher for any clarifications and rewrite sections if needed. Students can seek feedback from the teacher. Students have to individually submit the research proposal template. **Activity 2 - Conclusion (15 min)** Recap the module and seek feedback from students about the module. Students can share what they liked/did not like in the module. Teacher can create a mind map in the class to revise the major themes discussed in the module	

1.3 Module Project

The students will be writing a research proposal on a topic of their choice. The projects will be submitted to the teacher in the final session.

The project will be introduced to the students during session 9. Students will be asked to design a research proposal that includes a broad theme, problem identified for the research, explaining why that particular research problem is important. Students will then write 3-4 research questions and share their plan for data collection. Students would be required to work on the project individually.

During the introductory session the teacher will provide the students with the research proposal worksheet and they will be suggested a wide range of topics such as climate change, pollution in Delhi, etc. to work upon. Students will go through the research proposal they have written and ask the teacher for any clarifications and rewrite sections if needed. Students can seek feedback from the teacher.

1.4 Formative Assessment Rubric

Score point	1-2	3-4	5-6	Evidence
Criterion B: Inquiry and exploration	1. Student identifies a problem for research but has not stated why the research problem is important 2. Student is not able to frame two research questions	1. Student identifies the problem for research and states why the research problem is important in limited way 2. Student has framed two research questions but are not relevant or researchable	1. Student identifies the problem for research and demonstrates a substantial understanding of the problem/issue at hand and describes why the research is important in sufficient detail 2. Student has framed at least two research questions which are relevant, specific and researchable	An exemplar research proposal will have the identified the problem for research and demonstrates a substantial understanding of the problem/issue at hand and describes why the research is important in sufficient detail. At least two research questions will be written which are relevant, specific, and researchable. The plan for data collection will have the descriptions of the type of data that will be collected – (primary/secondary) – the respondents for data collection will be identifies and the tools will be described with the rationale for selection
Criterion C: Critical Thinking & Decision Making	1. Students write down a plan for data collection in a limited way but not appropriate for the research questions.	1. Student writes down the plan for data collection which covers some of the components, which is appropriate for the research questions.	1. Student writes down a coherent plan for data collection which covers all components and is relevant to the research questions	

1.5 Teacher Professional Development for the Research and Critical Thinking

Objective –

- To introduce teachers to the skills of critical thinking and ideas of Research and its key processes.
- To explain the module structure and to explain the pedagogical ideas of the module.
- To support the teachers each week in delivering the sessions and managing the transacting of this module in the classroom, including evaluation.

Note -

- Warmup exercises, icebreakers, and other techniques to be employed in order to maintain the energy and focus.
- It is good if teachers complete the majority of the student activities listed in the lesson plans during the Concurrent TPD sessions and share their observations with the group. They will have the knowledge and experience needed to carry out the activities successfully as a result.
- Mentor Teachers can conduct this TPD. It will enhance the effectiveness if a teacher who has already taught the module to students also participates.

Pre Module Session Structure:

The TPD sessions are designed as 9 hours of initial training before the start of the module, followed by 2 hour sessions before each of the 4 weeks of the module. The flow is as follows:

Session	**Themes**	**Duration** (minutes)
SESSION 1		
1.1	Introduction to foundations of research : Close observation, data organisation using tools of mind maps	45
1.2	Introduction to Grouping and classifying to grasp patterns and perspectives	45
1.3	Using fundamental research skills of observation, critical thinking to review a Social issue using video and article	45
1.4	Interactions and Ideas	30
SESSION 2		

2.1	I. Introducing the idea/concept that research is a systematic and rigorous process II. Different steps of the research process	45
2.2	Identifying the problem and developing research questions	45
2.3	Data Collection: Primary & secondary data, ethics in conducting research, developing a tool for data collection	45
SESSION 3		
3.1	Nature of Social Science Research	30
3.2	Reading texts critically (Understanding facts vs opinions)	30
3.3	Analyzing Research	30
3.4	Analyzing and representing Data	30
3.5	Interaction with a researcher	30
3.6	Assessment	30

Detailed description of the training sessions:

Introduction to the module

- Introduction to Critical Thinking and Research
- Academic Research
- Market Research

This module will take you through

1. Close observations
2. Research Process
3. Data Analytics
4. Life world of a researcher

Session 1

What is Critical Thinking ?

(Ref.What is critical thinking? - Learn HQ)

Critical thinking is a kind of thinking in which you question, analyse, interpret, evaluate and make a judgement about what you read, hear, say, or write. The term *critical* comes from the Greek word *kritikos* meaning “able to judge or discern”. Good critical thinking is about making reliable judgements based on reliable information.

Applying critical thinking does not mean being negative or focusing on faults. It means being able to clarify your thinking so that you can break down a problem or a piece of information, interpret it and use that interpretation to arrive at an informed decision or judgement (for example designing a bridge, responding to an opinion piece or understanding a political motivation).

People who apply critical thinking consistently are said to have a critical thinking mindset, but no one is born this way. These are attributes which are learnt and improved through practice and application. In the academic context, critical thinking is most commonly associated with arguments. You might be asked to think critically about other people's arguments or create your own. To become a better critical thinker, you therefore need to learn how to:

1. **clarify** your thinking purpose and context
2. **question** your sources of information
3. **identify** arguments
4. **analyse** sources and arguments
5. **evaluate** the arguments of others and
6. **Create** or synthesise your own arguments.

1.1 Foundations of research - Observation, field notes, data organisation

Objective : Session will include discussion and orientation on the theme “ Trees” to understand close observation (using five senses), recording of field notes and presentation of data using mind maps to capture or recognise different ways of observing.

Pedagogical approach : To help students recognise the importance of close observation in understanding about a particular topic. In this session it is about the ‘tree’, its habitat, friends & foe: using all five senses and their lived experiences around the trees. Similarly, these skills can be used for any other topic.

We also highlight that in observation(using their stories), we also bring in our opinions, beliefs, superstitions which we may have heard from family, friends to understand about the object of study. We

need training to critically look and investigate as a researcher to understand in-depth about the subject of research.

For students : At this stage, the idea is to introduce them to close observation, making field notes, recording of observation data and recognising different ways of observation and perspectives that emerge in the process. If possible, we must be able to, through data, present to the class that there could be gaps in data collected (exact colour, shape of the leaf, structure) and such gaps can be captured by asking detailed questions about the topic (pls use Field guide book). If possible we must highlight how our opinions, beliefs, superstitions also form part of our observation and how to recognise it.

E.g. Planting trees is good. The field observation may indicate that many trees are dying as there are way too many trees in a small area. This observation can further lead us to ask detailed questions on the issue. (ref to Conversation with Pradeep Krishen, Indian Filmmaker and Environmentalist

Another example can be : many avenue trees are weak and fall, creating havoc on the roads of Delhi.

Teacher Resources : 1. A video to understand the importance of **observation** in research. Using 'Observation' as a research design - types, advantages, and disadvantages!!

2. Naturalistic Observation : naturalistic observation method

3. Teacher Resources on Trees of Delhi :

Conversation with Pradeep Krishen, Indian Filmmaker and Environmentalist

Library Books : To be kept in the classroom for reference

Trees of Delhi - A Field Guide, Pradip Krishen

Other books on trees from the library be made available for reference

1.2 Grouping and Classifying

Best the activity is carried out in silence. Avoid correcting students on right reason. Let them play the game and share their reasoning, spontaneously.

Objective - To understand that grouping and classifying presents a pattern and at times few reasons may not come under any particular group/category.

After the activity, students are encouraged to make a map/chart of the reasons for classification. A few pointers that may emerge from the activity,

1. The groups are classified using attributes; this could be one way of classifying.
2. Few objects were not classified using attributes.
3. Few were based on other reasons/emotional connect.

Pedagogical approach : To help students see patterns from classification. Attributes may be straightforward to classify and some may not be.

For example, to understand if trees are native to a particular region, we will need to answer a few questions critically before we classify them as native or not. The questions can begin with attributes (shape, size, structure ect) followed by research of if grown with human intervention or natural ways of dispersal and the time periods.

So, to the question which trees are native around you may be difficult to classify using attributes. This will need reasoning based on facts and evidence.

E.g. Araucarias (like the Delhi Christmas Trees)

(For teacher preparation and use in class)

The conifer commonly sold as indoor 'Christmas Tree' in Delhi is the New Caledonian pine or Araucaria columnaris species, native to New Caledonia.

There are 19 species of Araucarias world wide. It is revealing to see how widely scattered their distribution is : 3 species are found in New Guinea and eastern Australia. Thousands of kilometres to the east, the South Pacific Islands of New Caledonia (Australia) are home to 13 species, and Norfolk islands (Australia) nearby is famous for one species that bears its name. The 2 remaining species are found in Chile, southern Brazil.

The **explanation** for their scattered occurrence is that Araucarias are an ancient form of plant life and were present on the supercontinent before it broke up. Their present distribution is related to what happened when the continents drifted free.

The oldest fossil find of an araucaria dates back to 190 million years. And comes surprisingly from **Southern India**. Suggesting that the genus was once much more widely distributed than it is now. The present range of these unusual conifers probably represents only a small fraction of a once extensive distribution especially over the southern hemisphere.

For our understanding, if we take the working definition of Native as, species that originate and developed in its surrounding habitat and have adapted to living in that particular environment without any human intervention. We can safely say, Araucarias are native to Australia, New Guinea, Caledonia, Brazil, Chile.

In the human time period, Araucarias are not native to India. The oldest Araucaria cooki were brought in by the British in the 1861's and are found in botanical gardens in Lalbagh, Bangalore(heritage trees, Vijay Thiruvady, P:35, 2011). (Ref. Trees of Delhi, Pradeep Krishen, P.)

Teacher Resource : Article on : Trees - suitable trees, native trees and habitats. It is critical to plant the right trees: Pradip Krishen | Mint

Classification : It is critical to plant the right trees: Pradip Krishen

1.3 Using fundamental research skills of observation, critical thinking

Recap on ways of seeing, grouping, emerging patterns and ways of classifying. Reiterate on the use of deeper inquiry and reasoning.

Objective : Critical review of video clip and article to understand human and animal interaction in urban spaces. To help understand the issue from different lenses/perspectives.

Pedagogical Approach : To keep an element of surprise and show them the video clip. Encourage children to note down as they watch using the 4 W (what, where, when, why and 1 How)

After the film clip, encourage class discussion.

In groups of 4-5 students can read the article. Using the critical review worksheet(in Student workbook Critical Review Worksheet (for Session 3 of week 1)), the group can discuss the video and article and **individually** write their reviews.

To sum up : Importance of understanding a topic from different lenses and arriving at an informed understanding using close observation and research skills.

Teacher preparation :
WIll be good if the teacher can watch before the day 3 session Eeb Allay Ooo! | Official Trailer | Anurag Kashyap | Prateek Vats | Shardul Bharadwaj

2.1 Research is a systematic and rigorous process

Objective : To understand that research is a systematic and rigorous and that there is a process to conducting research

Pedagogical Approach:

1. What is Research?

(a) Use an example to show/highlight the difference between carrying out search and research. buying an equipment eg.

If you are to purchase a laptop/air purifier, how will you make a decision? What features will you look at? Will you call this process as search or research and why?

- ➔ Laptop (you will look at the scream size, operating system, storage space, processor , RAM, colour, cost, warranty etc..)
- ➔ air purifier (you will look at the size of the room, choose the right filtration system, check the ACH (air circulation/hour rating, cleaning requirement, maintenance cost , noise level, energy consumption, warranty etc..)- **This is only searching- you are trying to get some information.**

(b) Why do we do research: we want to know more about the problem/issue, find a solution, construct new knowledge, make well-informed decisions, create awareness amongst different stakeholders, influence decision makers & policy makers etc.

(c) Focus & emphasise-**Research is a systematic and rigorous process.**

(d) There is a systematic way to carry out research. Every discipline has its own specific methods to collect data but the core nature of the research process remains the same.

2. Research process

(a) Introduce the steps in the research process and briefly explain each step. Identifying the problem, developing the research questions, looking up the prior research done on this topic, developing a plan to collect data, collecting the data , analyzing the data and reporting the findings

(b) The teachers are shown a video and asked what they understand about research. What is research?

(c) They are then given a cut out of the research process. They are to arrange these in order. Once they are done with the activity, they briefly try to explain what each step means.
w2d1_ steps in a research process

(d) RESEARCH STEPS

B1: identify the problem: what is the problem you want to know more about or want to address

B2: convert the problem in the form of a research question so that you can work towards finding the answer.

B3: when you are carrying out research, you don't have to start with a blank slate as some research would have already been done on the topic you want to study. So, you read through various credible sources to find out what has already been said about the topic (peer reviewed journals, books, government reports etc.)

B4: methodology: who are your respondents, what tools will you use?

B5: collect the data

B6: analyze the data: simple excel, different qualitative and quantitative tools

B7: communicate your findings: Report, Presentation/Blog, Policy Brief, Conference/Seminar/Round Table etc.

(e) Inform them that they will be oriented to these in detail during the Academic Module session.

3. Ask the teacher to share any doubts/concerns that they may have regarding the Lesson Plan.
4. Teachers make their own notes for taking the session with students.

2.2 Identifying the problem and developing research questions

Objective : Identification of the problem and developing a research question

1. Identification of a problem

(a) 1st step in the research process is to identify the problem/issue/concern area

(b) We see different kinds of problems/issues around us: waste not being segregated, air pollution in Delhi, low student engagement in the class, students dropping out after completing primary, lecture based pedagogy, lack of girls toilets in schools etc.
(c) You could ask the students what are the problems they see around them or what are the problems they want to explore/know more about.
(d) Show the teachers the different thematic photographs and ask them to identify the problems that they see. Discuss the responses.

2. Developing a research question

(a) Show teachers a list of research questions. Ask them if it is a good/bad research question and why ?
(b) Give teachers a theme and ask them to develop research questions. Need help with a doable/non-doable research question.
(c) IMP: Research Questions should be clear, specific & focused, doable/researchable/practical

Research Questions		
1	Why are children not engaged in class?	Why are children of grade 6 of ABC school not engaged in the science classroom?
2	What is the effect of instagram and facebook likes on the self-confidence & self-esteem of 15 year old students?	How are children affected by exposure to social media?
3	What is the impact of lack of infrastructure in schools?	What is the impact of lack of infrastructure (desks, chairs, toilets, playground) etc. in schools on students' access and learning outcomes?
4	What are the most effective communication strategies for increasing voter turnout of individuals between the age 18-30s living in urban areas?	What should political parties do to increase voter turnout in their region/constituency?
5	Has there been an increase in girls' participation in the class due to inclusive teaching-learning practices?	What kind of inclusive teaching practices can increase girls' participation in the class?
6	What is the impact of water scarcity on the health of people residing in the community?	What is the impact of water scarcity on the education of the girl child?
7	How can ICT tools improve teachers' practice?	How can the use of ICT tools /resources like phet simulation, improve teachers' pedagogy in the subject of science?
8	What measures can be taken at an	How can the process of waste management be

	individual and policy level to improve waste management in your city?	improved?

(d) Select one problem and ask the teachers to formulate 3-4 research questions

3. Ask the teacher to share any doubts/concerns that they may have regarding the Lesson Plan.
4. Teachers make their own notes for taking the session with students.

2.3 Data Collection

Objective: To introduce various concepts related to Data Collection.

5. Primary & secondary data

(a) In research, there are 2 main types of data: primary & secondary.

(b) Ask the teacher if they have heard the terms: primary & secondary data and what it means. (add info through different kinds of examples)

1. Data collection tools: interviews, surveys and focus group discussion

(a) We use tools such as interviews, surveys and focus group discussions to gather information about people's perceptions, opinions and experiences on a certain issue/theme.

(b) Interviews are carried out 1-1, largely open ended questions. Surveys can be carried out with large numbers, questions are largely close ended (set of responses to choose from), FGDs: carried out with groups of people, ideal number is 5-10 and questions are open ended.

(c) Ethical considerations: Discuss the important points that one should keep in mind and should be conscious of when collecting data (List uploaded in resources) Ethical considerations and other points.docx

2. Activity: Tool development

(a) IMPORTANT POINTS:

- Always keep in mind/keep going back to your Research Question.
- The questions you will ask in your interview schedule/survey should be geared towards answering your Research Question.
- It is important to clearly put down what exactly you want to know. This will help you in devising appropriate and relevant questions.
- Questions should be simple, clear and concise
- Questions can be related to knowledge, beliefs & attitude and experiences
- Do not ask WHY questions. That is for the researcher to find out. Ask WHAT & HOW questions.
- Ask open ended questions instead of close ended questions.
- Don't ask leading questions

(b) Get the teacher to develop an interview schedule (4-6 questions)
THEME: Lack of infrastructure in schools
RQ-What is the impact of lack of infrastructure (proper building, desks, blackboard etc. chairs, toilets, playground) etc. on student's learning?

Interview Questions	
1	What are the infrastructural facilities available in the school?
2	What are the reasons for poor/inadequate infrastructure in the school?
3	Has there been any dropouts (girls & boys) due to poor infrastructure. Please share drop out numbers?
4	How are parents being convinced to send their children to the school despite
5	What challenges do teachers face in teaching students without a proper infrastructure? Please give examples
6	How does lack of proper infrastructure impact teachers' motivation to teach? Please give examples
7	What is the level of engagement of students in the class?
8	How are you measuring student learning in such circumstances/situations?
9	What kind of challenges/difficulties do students face viz a viz their own learning?

3. Ask the teacher to share any doubts/concerns that they may have regarding the Lesson Plan.
4. Teachers make their own notes for taking the session with students.

Session 3

3.1 Nature of Social Science Research

Objective: To understand the difference between natural science and social science research - nature and processes and how to teach this to students.

Pedagogical Approach:

1. Teachers read portions of the article (15 Mins)
    a. UNIT 1 NATURE OF SOCIAL SCIENCE RESEARCH and discuss

- Nature of Social Science research
- How to do social science research
- Differences between Natural Science and Social Science Research

Science Research	**Social Science Research**
How does hibernation in animals work?	How can we reduce the gender gap in STEM education?
How does the neuron structure change during sleep?	What is the impact of the Mid-day meal scheme on student enrollment in schools?
How are molecular and organismal biology related to each other?	What are the ways in which assault against women on buses can be reduced?
What are the most recent methods of synthesizing natural products?	How do street children in Mumbai survive on a day-to-day basis?
What are the approaches for converting arid lands into fertile lands?	What is the nature of support required for newborn children and their mothers in tribal areas?
What is the environmental impact of bottled water?	How did the sudden lockdown due to Covid-19 impact day labourers in big cities?
How does the pH level of water react to alkaline soil?	What are the changes in traffic patterns after Metro was operational in Bengaluru?
Why do different colours absorb radiant energy differently?	How can access to clean drinking water be provided to villages in Rajasthan?

How can industries conserve energy and reduce the consumption of energy? Is this science or social science research?

2. Teachers will go through the student session Week 3 Session 1 and clarify any doubts or issues (10 Mins)
3. Teachers make notes for teaching the session (5 mins)

3.2 Reading texts critically (Understanding facts vs opinions)

Objective: To read texts carefully and understand what facts and opinions are.
Pedagogical Approach:

1. Use the student worksheet facts vs opinions and ask teachers to fill out the worksheet and discuss the responses (15 Mins)
2. Teachers will go through the student session Week 3 Session 2 and clarify any doubts or issues (10 Mins)
3. Teachers make notes for teaching the session (5 mins)

3.1 Analysing Research

Objective: To read a research study carefully and examine the research critically.
Pedagogical Approach:

1. Teachers will watch the video - interview with Virat Virat Kohli In A Candid Interview With ET Now | Exclusive and critically examine the research (25 Mins)

2. Teachers will go through the student session Week 3 Session 3 Activity 1 and clarify any doubts or issues (5 Mins)
3. Teachers make notes for teaching the session (5 mins)

3.3 Data Analysis

Objective: To read a research study carefully and examine the research critically.

Pedagogical Approach:

1. Teachers will attempt the worksheet W3D3_ Activity 2_Data Analysis.docx and discuss aspects of data analysis (25 Mins)

2. Teachers will go through the student session Week 3 Session 3 Activity 2 and clarify any doubts or issues (5 Mins)
3. Teachers make notes for teaching the session (5 mins)

1.6 Student Workbook

Introduction

I.II World of Work

One of the components of the vision for Schools of Specialized Excellence (SoSE) is increasing exposure of students to careers and the world of work. However, career domains today are not straightforward and are becoming exceedingly integrated. Students require a multidimensional and interdisciplinary approach. Separately, the best education globally offers students abundant opportunities for project-based learning, development of higher-order thinking skills and development of soft skills.

The World of Work (WOW) course aims to address all the above requirements during the 9th and 10th grades for the SoSE schools of the Humanities stream. The course is designed as a series of 1 month (16 classroom hours) 'taster' modules that explore different skills and careers in the humanities and social sciences. The modules are designed as a skill module, paired with career modules. Skill modules address a workplace skill that has wide applicability across a range of careers. Each skill module is followed by 2 career modules which are strongly associated with the skill and which develop further on the skill. For example, the Transmedia Storytelling module is followed by Journalism and Content Creation as career modules. Each module is a 16 hour exploration and is delivered via discussions, expert guest speakers ('masterclasses'), digital content, field visits, projects and assignments. These modules are critical in enabling SoSE students to make informed choices and prepare in advance to succeed in their chosen career pathways.

Students learn in various ways in the World of Work course. In developing the modules a priority has been to provide interesting and vivid teaching material including videos and presentations. Classroom discussions are an important part of the session and students learn from each other as well as develop their confidence and spoken communication. Expert guest speakers and field visits offer rare and privileged opportunities to experience a profession. Assignments and project work take them out of the classroom to engage with the environment they live in. These also demand developing time management, creativity, working collaboratively and good presentation skills. All this nurtures students for all round development and at the same time sets them up for success in their chosen area of specialization.

The role of the teacher in the World of Work is challenging and rewarding. The teacher is not an expert in the subject material, even though there is extensive teacher training. Therefore they act more as facilitators for the students' learning. They do need to stretch their boundaries to familiarise themselves with all the skills and careers in the course. Group and individual projects are an integral part of the course and facilitating these and managing the ambiguity inherent in evaluation of projects is a new skill to be learnt. Classroom discussions are a vital part of the course. The teacher must adapt to all these new formats of running a class. They have to give up their tried-and-tested methods of teaching and try on new ones – a humbling experience. The rewards for the teacher are in the tangible growth and development of the students in areas like confidence, presentation and communication. The teacher will also experience significant personal and professional growth in the process.

Assessment is an important part of the World of Work. The course is meant to be rigorous and not limited to the level of awareness-raising or exposure. The course delivers specific skills and concepts that the students are expected to understand, internalize and apply. The assessment framework has components of "Knowledge and Understanding", "Inquiry and Exploration", "Critical Thinking and Decision Making" and

“Presentation and Communication”. Assessment of each module of WOW will draw from the above set of components and be tailored to the module. Internal assessment of the modules will be usually through the module project, while the summative assessment could be through a variety of formats including mini-project or different types of sit-down exams.

I.II Overview of the curriculum

The World of Work course is designed as a series of 1 month (16 classroom hours) ‘taster’ modules that explore different skills and careers in the humanities and social sciences. The modules are designed as a skill module that is paired with one or more career modules. Skill modules address a workplace skill that has wide applicability across a range of careers. Each skill module is followed by 2 career modules which are strongly associated with the skill and which develop further on the skill. For example, the Transmedia Storytelling module is followed by Journalism and Content Creation as career modules.

The following table gives the full list of modules that will run in the World of Work curriculum.

Skill Area	Career Pathway 1	Career Pathway 2
Transmedia Storytelling	Journalism	Content Writer
Mapping and Visualization	Geographic Information System (GIS) Analyst	Urban Planner
Working with People and Communities	Social Work	
Enabling Learning	Teaching	
Justice and Constitution	Lawyering	Public Policy
Research and Critical Thinking	Academic Research	Marketing Research

The first 3 rows show the modules that run in 9th Grade and the next three rows the modules that run in 10th grade.

Below shows the classroom time allocation for the modules and the number of instructional days they will run over.

S.No.	Modules	Suggested time allocation/Instructional days
Grade 9		
	Unit 1: Transmedia Storytelling	16 hours/12 days
	Unit 2: Journalism	16 hours/12 days
	Unit 3: Content Creation	16 hours/12 days
	Unit 4: Mapping & Visual Representation	16 hours/12 days
	Unit 5: Cartographer / Geographer	16 hours/12 days
	Unit 6: Urban Planner	16 hours/12 days
	Unit 7: Working with People & Community	12 hours/ 9 days
	Unit 8: Social Work	12 hours/9 days
Grade 10		
	Unit 9: Enabling Learning	12 hours/ 9 days
	Unit 10: Teaching	12 hours/ 9 days
	Unit 11: Justice and Constitutional Values	16 hours/12 days
	Unit 12: Lawyering	16 hours/12 days
	Unit 13: Policy Advocacy/Public Administration	16 hours/12 days
	Unit 14: Research and Critical Thinking	16 hours /12 days
	Unit 15: Academic Research: Historian/Sociologist/Economist	16 hours/12 days
	Unit 16: User Research / Market Research	16 hours /12 days

Note the exceptions to the standard format: In two skill areas, “Working with People and Communities” and “Enabling Learning”, there is a single career module associated with the skill module. In these two cases, the skill module runs for three weeks and the career module for three weeks. In these cases, the skill and career modules are tightly integrated rather than running as individual modules.

I.III Objectives of the curriculum

- To give the students a very wide area of exploration that leaves them with an understanding of the world of work at large. They are also shown interconnections between modules and clusters and realize the interdisciplinarity of the world of work.
- To develop a range of skills (the skills of the skill modules) that will continue to be useful to students in their future irrespective of the specific career path they choose.
- To give the students sufficient information and engagement with skills, careers and workplaces so that they can start a deeper process of focussed exploration in skills and professions as designed for the 11th & 12th grades. In a few cases, the students will have gained enough clarity from the course that they will make a decision on their own about their career goal and independently plan and work towards reaching it.
- To develop their ability to do independent work and thinking, to deliver projects, and work collaboratively.
- To develop skills of critical thinking and creativity.
- To enhance students' presentation skills in different modes and media.

I.IV Curriculum Framework

The course consists of a sequence of skill and career modules. These modules are grouped into related clusters. A cluster will contain a skill module and 2 (or 1) related career modules.

A skill module introduces the students to a particular skill or skill area that is widely required for many careers. In this course the students are introduced to 5 skill areas in the Social Sciences and Humanities which gives them a good range of knowledge. By practicing these skills, students develop themselves with a wide range of skills. Simultaneously they have the opportunity to find out if they have an aptitude for or interest in that skill. Discovering such interest and aptitude can be an enormous boon to the student - if they find a niche they are happy with, they start exploring and developing on their own and the future unfolds with ease and fulfillment. While it is not possible to develop a skill in-depth in the time available, the engagement with the skill does result in concrete learning outcomes.

Career Modules explore a career that is strongly connected to the skill in that cluster. Career modules explore the career from multiple perspectives:

Skills: The career module builds on the work done in the skill module to develop the skill further in the context of the particular career. For example the Journalism career module will take storytelling to the context of Journalism.

Career Roadmap: The career module will talk about a way to join that career ie. what subjects to choose for 11th & 12th grades, what degree courses are appropriate, what are the premier colleges, what communities of practice exist, relevant skills to develop etc.

'A Day in the Life': The career module also gives students an idea of what work in that career looks like. Practitioner interactions are a very effective way to do this.

Is this for me?': The various interactions and experiences of the career module helps the student build some evidence for whether this is the direction they want to take. The intention is not however that the student should decide by the end of 10th grade.

Career modules will have sub-areas or may cover a career *area*. For example, Content Creation is a career area which covers careers in Graphic Design, Content Writing, Film-making and more. Journalism is considered a career, but there are a wide range of sub-options by media and types of writing eg. news reporting, news analysis, photography, video journalism etc.

I.V About this handbook

The Students' Handbook for Introduction to Research and Critical Thinking has been developed with the objective of providing students with the crucial information and guidance required to understand the module. The handbook covers various aspects, including formulating research questions, designing research methodologies, collecting and analyzing data, and presenting your findings effectively. Additionally, it delves into the realm of critical thinking, equipping you with the tools to evaluate information critically, challenge assumptions, and develop well-reasoned arguments.

TABLE OF CONTENTS

Student Planner

Session	Topic	Objectives and Description	Readings
Week 1			
Session 1	**Close Observations and Presenting Data Using Mind Maps**	1. To understand how observations are carried out with the help of our senses 2. To identify the gaps and silences in the observation 3. To understand how to map observation data using mind maps *In this session we will be looking at the nuances of observation and how we can use our senses to observe things closely. We will also be learning about mapping the data gathered through these observations using mind maps. The gaps produced within the observations will also be looked upon.*	
Session 2	**Different Ways Of Classification**	1. To understand how classification is done and what are the different ways of classifying. *In this session we will be looking at the concept of classification and the different ways of carrying out the process.*	w1d2 Classification : It is critical to plant the right trees: Pradip Krishen
Session 3	**Critically Watching a film to understand different perspectives**	1. To understand close observation through (4W+ H). 2. to recognise and understand different perspectives used in the film *In this session we will be focusing upon doing close observations and looking at different perspectives through the means of watching a film.*	

Week 2			
Session 4	**Introduction to research and understanding the research process**	1. To understand research as a systematic process 2. To understand the different steps of conducting a research. *In this session we will be looking at the concept of research as a systematic process and understanding what are the different steps that are involved in this process.*	
Session 5	**Identifying a problem and developing research questions**	1. To identify a problem and develop research questions 2. To develop a mini research proposal *In this session we will be focusing upon how to identify a problem and develop research questions related to it. Students will also be creating a mini research proposal to get a sense of how the actual research work looks like.*	
Session 6	**Data Collection in Research**	1. To understand concepts such as primary & secondary data 2. To familiarize students with various tools of data collection 3. To design tools for data collection *In this session we will be looking at different types of data i.e. primary and secondary and the various tools of data collection. We will also be looking at how to create the interview schedule as a research tool.*	

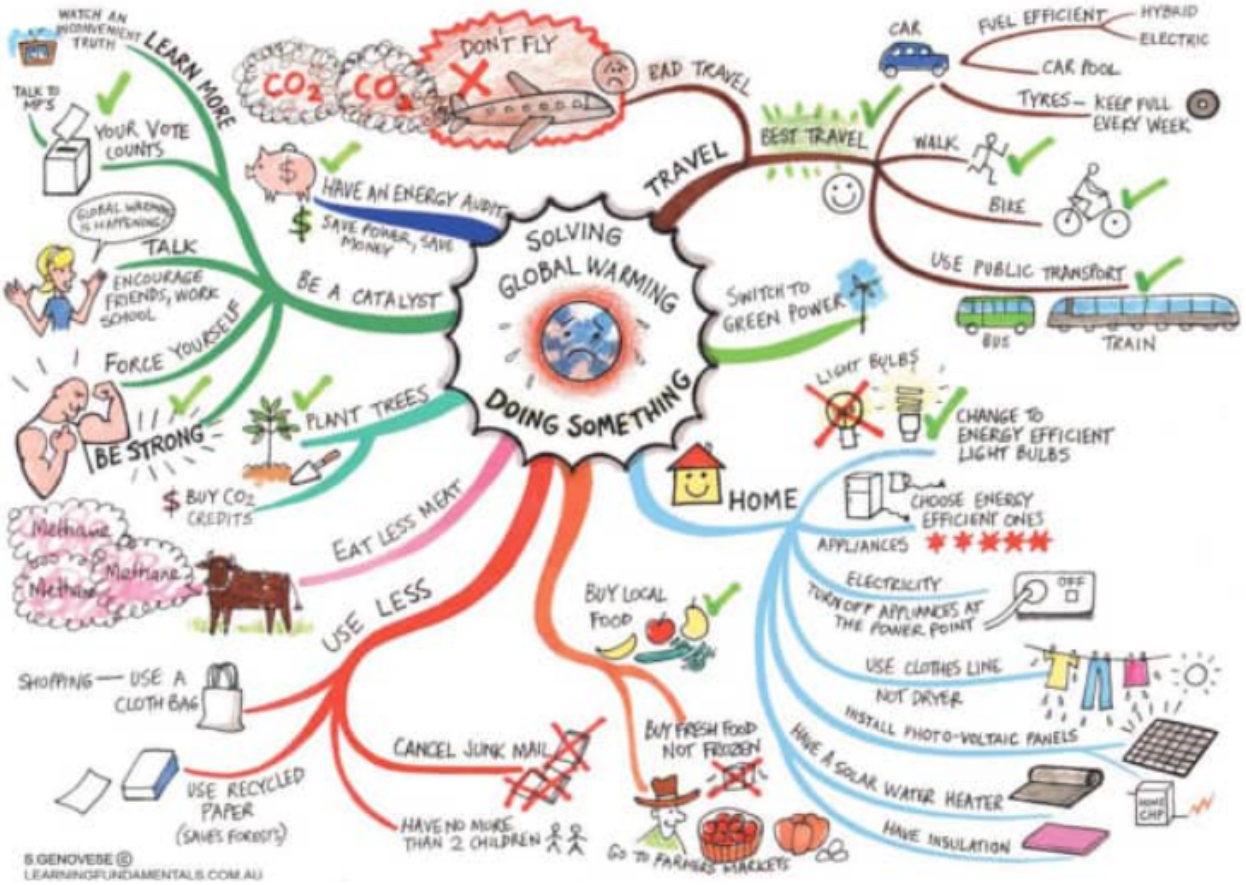
Week 3			
Session 7	**Difference between natural science and social science research**	1. To understand the difference between a natural science research and a social science research. *In this session we will be looking at how to differentiate between natural science research and social science research.*	
Session 8	**Facts vs Opinion**	1. To identify facts and opinions and distinguish between the two 2. To critically read a text and identify the facts, opinions and claims made. *In this session we will be looking at the concept of facts and opinions and the process of reading a piece of text critically.*	
Session 9	**Making sense of data**	1. To analyze research critically 2. To do some basic data analysis with respect to the research *In this session we will be focusing upon how to analyze a research critically and how to do data analysis.*	
Week 4			
Session 10	**Listening to the research process of a researcher**	1. To learn the research process from the experience of a researcher. *In this session students will be looking at the process of research through the eyes of a researcher and learn from their experiences in the field on how to undertake a research.*	

Session 11	**Interaction with a researcher**	1. To learn more deeply about the research process through an interaction with a researcher 2. To understand the skills needed to become a good researcher *In this session we will be learning about the process of conducting a research by interacting with a researcher and also look at the various skills required to be a good researcher.*	
Session 12	**Filling a research proposal template**	1. To understand how we present ideas in an organized and coherent manner. 2. To draft and submit a research proposal *In this session we will be focusing upon understanding the nuances of creating a research proposal and how to successfully represent our ideas in a holistic and concise manner.*	

Cluster VI Module 1: Introduction to Research and Critical Thinking

Mind Map

Look at the mind map of 'Solving Global Warming' given below:



Close Observations

After completing the observation using the template, the following table will help you to summarize your observation. Collect as many objects related to that particular tree and bring them to the class. (bark, seed, leaves, nests, dead insects, materials/ objects of interest near the tree etc.)

w1d1_Nature Journal Template.pdf

	BRANCHES	TRUNK	ROOTS	LEAVES	FLOWERS
See					
Touch					
Smell					
Hear					
Taste					

Different Ways of Classification

Write the names of objects that formed a group in different boxes. Give the reasons for your classification.

It is critical to plant the right trees: Pradip Krishen

Pradip Krishnen, environmentalist and author of 'Trees of Delhi', in the Garhi Mandi city forest, Delhi.

Environmentalist and naturalist Pradip Krishen's 2006 book Trees of Delhi—A Field Guide, is a bible for nature lovers and birdwatchers in the Capital. Few people know Delhi's flora better than Krishen, who is working on a new book, Jungle Trees of Central India, due to be released this year.

We are in Garhi Mandi in south Delhi. A spectacular place—I don't think many people in Delhi know about a forest like this in the middle of the city.

No, you won't see many people here apart from the villagers who stay around the area. This is all alluvial soil that got piled up millions of years ago by the shifting of the Yamuna. It's pure silt,sometimes 80 ft deep. The ecosystem is totally different from the rest of the Ridge. For example, here's a tree called jhand. It likes sandy, deep soil because it has incredibly deep roots—30-40m—so you will only find jhand in old river beds like this, or Lodhi Gardens. People eat the fruit of the tree. The bark saved lives during the Great Rajputana Famine (1868-70), because you can make flour out of it. The leaves make great fodder, bees love the flowers. In Rajasthan, the jhand is called khejri and is worshipped.

Here's sheesham, it's not a native tree, but grows well in silted areas.
Most of the foliage you see is babool, or the true kikar, not vilayati kikar. Babool is native, and is almost an indicator of good alluvial soil. This is chudail here, a great native species that becomes a huge tree, then we have palash or flame of the forest, and semal.
Now this is a tree from Africa called Acacia tortilis or Israeli babool and this has been planted racross Haryana and Rajasthan by forest departments because it is extremely drought-hardy, and animals don't browse on it. Also, nothing nests in it, and it has absolutely no biodiversity value.

While some parts of this forest are beautiful, most of it looks badly degraded.
Yes, it's a theatre of destruction. There's encroachment from all sides since this land has no legal protection, and the state agencies still haven't mapped boundaries for these forested areas. Surely the role of the forest department is to treat this as a repository for useful species, and to use it in a way that is sustainable, by talking to people, engaging people. There is space here, elevation, different water gradients, a seasonal lake, everything you need.
If I was a forest officer in Delhi, I would be a bit puzzled about what my role is and where I'm supposed to go. They have virtually no role in the urban space; not on roadsides, and certainly not in parks. The Ridge is one big swathe where they can play a role. The Central Ridge is a great opportunity in the middle of the city for them to actually create an amazing forest which is beautifully adapted to the environment.

The forest department has been planting trees on "gram sabha" land in outlying areas in Delhi, but these plantations are all in little pockets. Each pocket is about the size of a football field.
I see very little utility in planting trees in little fragmented pockets, it just helps their statistics. A forest is much larger than its parts, it has to be a little micro habitat. Fragmentation is a deadly process for forests. There is a drastic fall in the number of species, both flora and fauna, when you fragment a forest. A fragmented forest is not viable on its own.
The Delhi government spends a lot of time and money on plantation drives. How important is it to plant the right kind of trees?
It is critical to plant the right trees. It starts with ecological issues—if you plant native trees, then you are planting trees already adapted to the environment; they don't need any extra water or nutrients. If you plant exotic species, let's say something that grows well in a rainforest, you will have to use vast amounts of

water to make it flourish, and there can be no excuse for that wastage. We all know what the vilayati kikar, introduced by the British from Central America at the turn of the 20th century, has done. It has invaded with alarming speed, killed off native flora and established itself all over the Ridge. I was once invited by the forest department to go to Asola (Delhi's only wildlife sanctuary) when they were on a plantation drive. They did not have a single native plant. I left. There is a huge awareness/sensitization gap that applies to every agency in Delhi concerned with horticultural work. Most recruits are taught nothing more than watering plants and digging pits.

Here, at the Central Ridge forest, how many species of trees can you see? How many can actually thrive here if this area is properly managed?

Right here there are 10-12 species of plants with decent populations. If there was proper management and the vilayati kikar was destroyed, this very water-stressed environment can support 80 species of just trees, not counting shrubs and climbers. Jodhpur has one-fifth the rainfall of Delhi, but supports large tracts of forests that have 70-80 species of trees.

Critical review of film to understand different perspectives

Scan the QR codes given below to watch the video and access the news article.

QR code for the video

QR code for the article

While Reading the article, think about the pointers given below:

What are your first Impressions of the article?

I. First, as you scanned the article
II. Second, after reading about it.

CONTEXT

What do you know about :
-The Author
-The Journal/Newspaper
-The Audience
-The Date
-What does this information tell you?

IDENTIFYING THE MAIN IDEA AND KEY ARGUMENTS

I. What is the author's main idea?

II. What are the key arguments presented in this article? What specific evidence, examples or illustrations has the author used to support their arguments?

III. Has the author ignored or left out any issues?

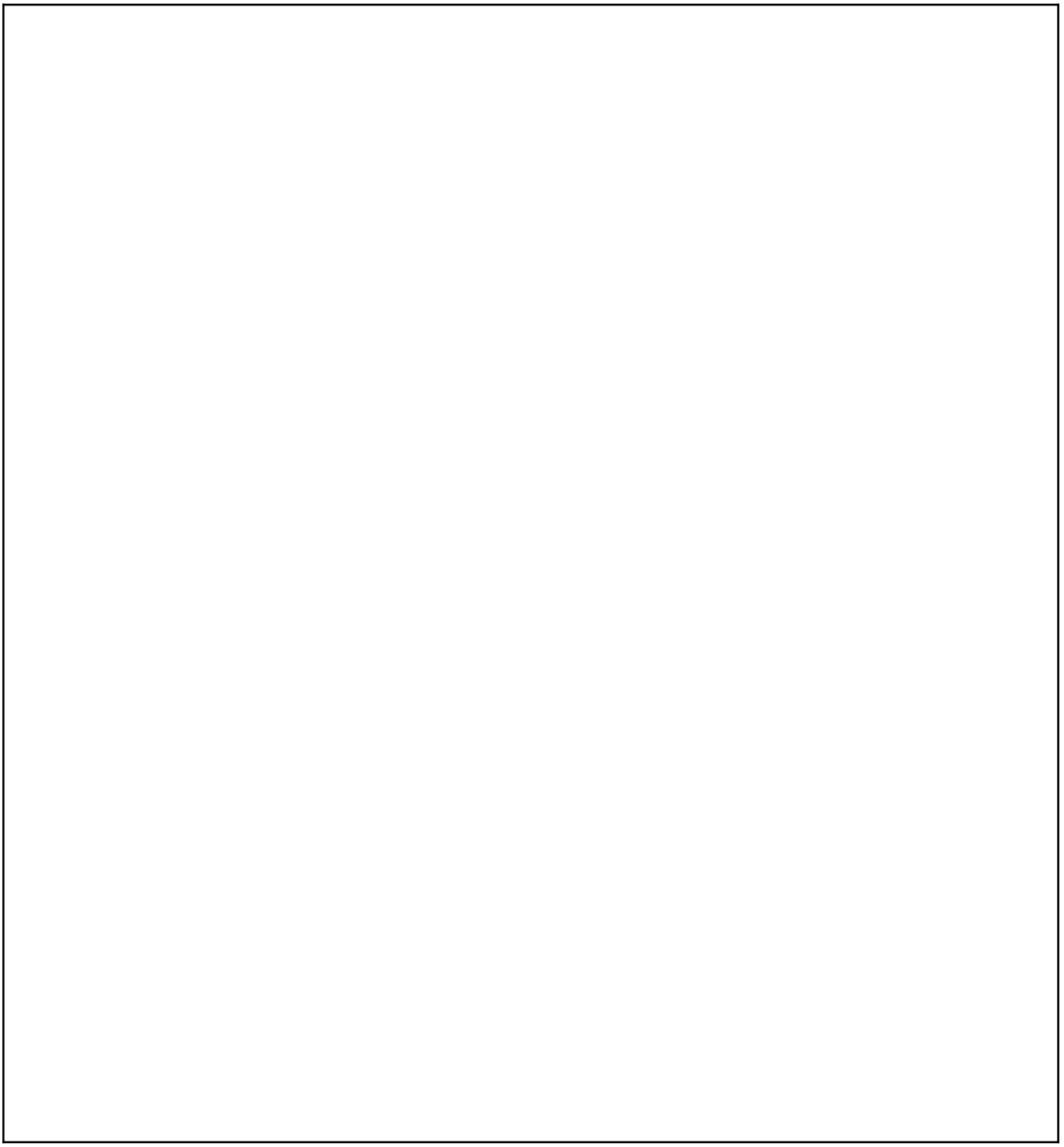
EVALUATION

How logical and valid are the arguments? Are they well constructed/supported?

REFLECTION

How does what the author says relate to your own situation and your opinions? Has the article succeeded in changing your beliefs or your position with its arguments?

Now, write a short critical review after watching the video and reading the news article .



Introduction to Research and Understanding the Research process

What is research?

Research is a systematic process for the creation of new knowledge and ideas. The final product of the research could be something tangible as a new alloy for creating batteries or something intangible like a new understanding of how children learn language. The process or methodologies of conducting research will vary from field to field. Nevertheless, there are some common stages in the research process.

Understanding the research process through an example.

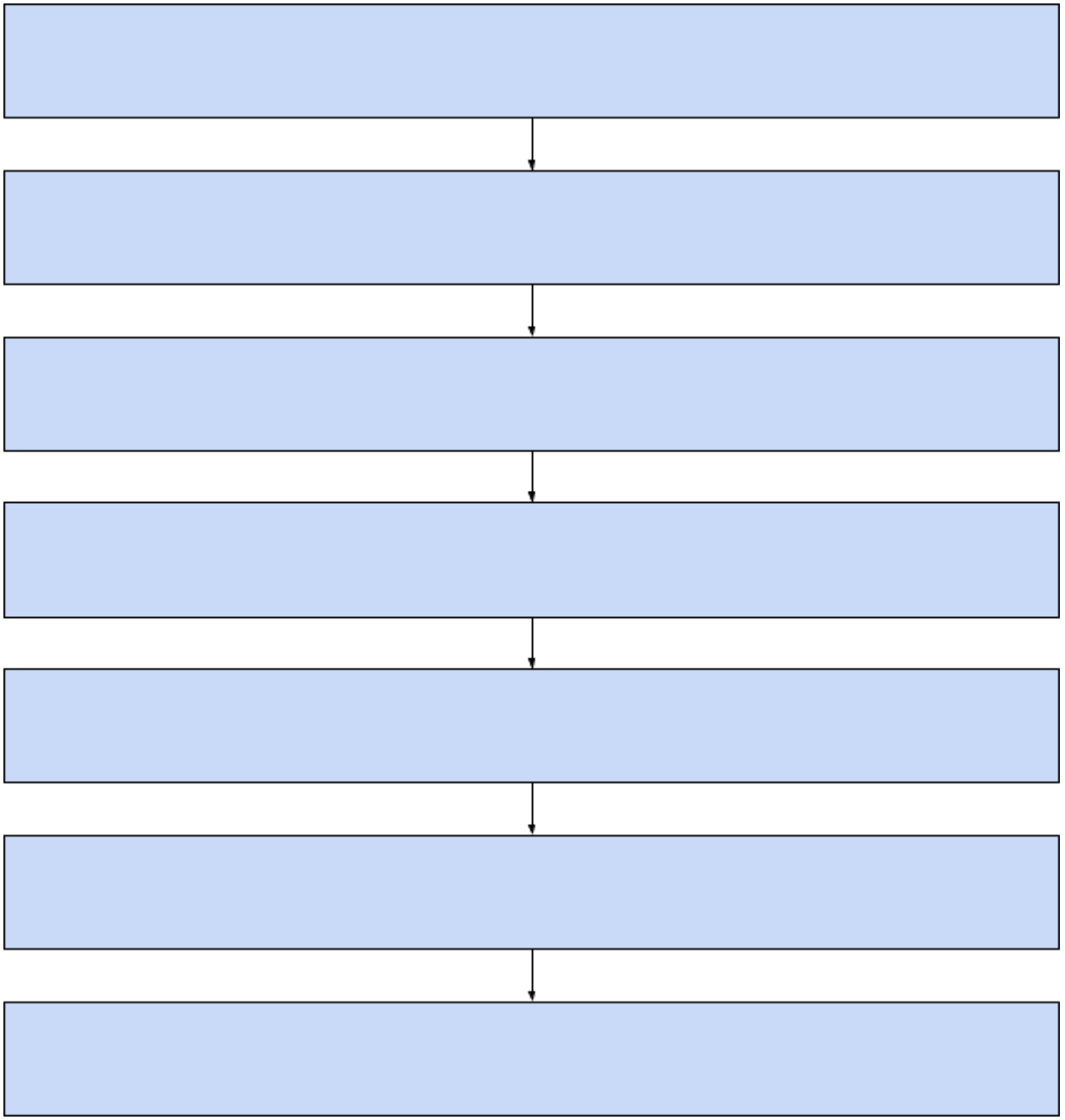
A headmaster in a school in Jangpura, Delhi was inspired by India's recent achievements in the Commonwealth games. The headmaster himself was an athlete in his school days but did not pursue it as a career. He wants to promote varied sports and encourage every student to play and those who are talented/have the potential to think about taking sports as a professional career. He wants to change the mindset of students and parents about sports as a profession.

But he has a few questions to which he is seeking answers:

(1) What are the factors that motivate students to take up sports?
(2) What support do students need to choose sports as a profession?

Steps in an research process

Based on your discussion in the classroom, name the different steps in the research process.



Identifying a problem and developing research questions

Research Question Generator
(adapted from UConn Library's adaptation of the University of Michigan Library Skills Challenge)
General Topic

What is your broad theme/topic? What is the problem you have identified?	

Topic Refinement

WHO? Who is impacted by your topic? Which population? Gender? Age? Profession? etc.	
WHAT? What aspect of your topic are you interested in? Is there a theme or category you'd like to focus on? Causes? Effects/implications? Solutions?	

WHERE? Are there any specific locations to where you want to focus your study?	
WHEN? What timeframe is most important in the study of your topic? Current? Historical? Specific event? Future?	

Research Question/Statement #1	
Research Question/Statement #2	
Research Question/Statement #3	

Research Proposal Template

1. **Problem/topic identified:**

2. **Research questions:**

3. **Plan for Data Collection (**will you be collecting primary data or using secondary data? From whom will you collect data? What data will you collect? Which tools will you use to collect data?)**:**

Data Collection in Research

Primary & Secondary Data:
Primary data is first-hand data collected by the researcher using interviews, surveys etc. and secondary data is using data that has been already collected

Tools of Data Collection: tools used for people to share their perceptions/opinions, experiences etc.

- Interviews: these are carried out one-to-one, and questions are open-ended
- Surveys: can be carried out with a large number of people, questions are largely close-ended (i.e. there is a set of responses to choose from)
- Focus Group Discussions: these are carried out with groups of people. The ideal number for a group discussion is (5-10), and questions are open-ended

Ethical considerations in Research: (important things to keep in mind when collecting data)

(a) The purpose of the study and the role of the participant to be communicated clearly to the respondent.
(b) Full consent of the participant should be taken prior to the study. This includes voluntary participation of the respondent, permission to record the respondent, and use of data for analysis and reporting.
(c) Participant names are to be kept anonymous for the purpose of data analysis and report writing.
(a) Confidentiality of the participant data to be maintained.
(b) While using secondary data, you should give credit/cite the other researchers

Create an interview schedule with at least four questions(schedule means the questions that will be asked in an interview): on the theme of **Parental support for pursuing sports as a career**.

Difference between Natural Science and Social Science Research

Write the differences between natural science and social science research from the discussions in the class.

Natural Science Research	Social Science Research

Describe the difference in & similarities in the research process of trees and that of motivation to take up sports.

Facts and Opinions

What is a fact? A fact is something that could be verifiable in time and space
What is <u>not</u> a fact? A fact is not a definition or theory. Fact is not based upon consensus or tradition.
What is an opinion? An opinion is an informed belief. Opinions are arguable. Opinions can be supported by evidence.
What is not an opinion? Opinion is not a preference. An opinion is not what you like. An opinion is not just what you believe.

Facts | Opinions

Instructions: Read each statement and underline if it is a fact or opinion. Explain your answer

1. Jawaharlal Nehru was India's first prime minister
    a. Fact | Opinion |Other
    b. Explain: _____
2. The cheetah is the fastest animal on Land
    a. Fact | Opinion |Other
    b. Explain: _____
3. Virat Kholi is the greatest cricket player of all time.

a. Fact | Opinion |Other

b. Explain: _____

4. Newton's First Law of Motion (Inertia) - An object at rest remains at rest, and an object in motion remains in motion at constant speed and in a straight line unless acted on by an unbalanced force.

a. Fact | Opinion |Other

b. Explain: _____

5. The sun rises in the east and sets in the west

a. Fact | Opinion |Other

b. Explain: _____

6. This generation of school children seem to be more stressed about exams than the previous generation.

a. Fact | Opinion |Other

b. Explain: _____

7. We should paint the classroom yellow as it is my favourite colour.

a. Fact | Opinion |Other

b. Explain: _____

8. It is wrong for people under the age of 21 to drink alcohol.

a. Fact | Opinion |Other

b. Explain: _____

9. The orange fruit contains both calcium and Vitamin C

a. Fact | Opinion |Other

b. Explain: _____

10. People who graduate from college are smarter than people who dropout of school

a. Fact | Opinion |Other

b. Explain: _____

11. Mahatma Gandhi was assassinated on 30 January 1948.

a. Fact | Opinion |Other

b. Explain: _____

12. Mahatma Gandhi was assassinated on 30 January 1948 because of his unwillingness to give in to a hatred of Muslims.

a. Fact | Opinion |Other

b. Explain: _____

13. It is dangerous to be outdoors during a solar eclipse.

a. Fact | Opinion |Other

b. Explain: _____

Data Analysis

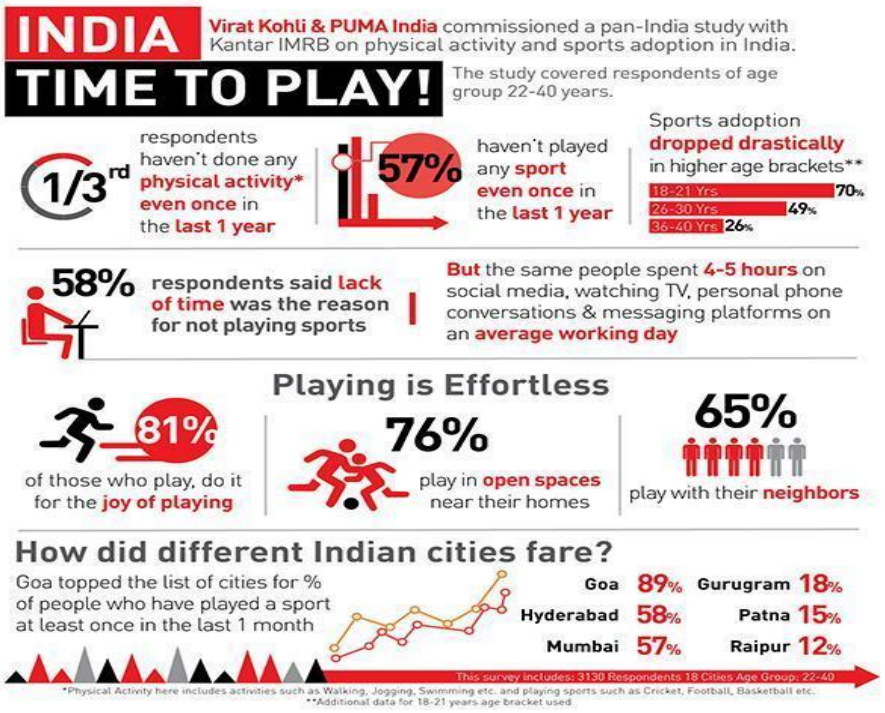
Read the article -
"Study reveals 1/3 of India did no physical activity in past year; skipper Virat Kohli is not too happy"

You can access the article here:

This article is related to the study commissioned by Virat Kohli that you heard about in the previous session (Interview with Virat)

Study

The study, covering 3924 respondents in the age bracket of 18-40 years (both male and female), was spread across 18 cities - Bangalore, Mumbai, Delhi, Hyderabad, Chennai, Pune, Kolkata, Cochin, Ghaziabad, Goa, Gurugram, Guwahati, Jaipur, Lucknow, Ludhiana, Patna, Raipur, and Surat.



Look at the infographic above and answer the following questions

1. How many respondents have not done any physical activity even once in the last 1 year?

2. How many respondents have played at least one sport in the last one year

3. If you have to make one graph representing the section "Playing is effortless" how would you draw it?

4. Can you find another way of representing the data to answer the question - How did different Indian cities fare?

5. Do you think this research is representative of the Indian population related to sports and fitness?Which section of society?Why or why not?

Research Proposal

Name:	**Class:**

Broad Theme:

Problem identified for research:

Why is this research problem important?

Research Questions (at least two)

Plan for Data Collection (will you be collecting primary data or using secondary data? From whom will you collect data? What data will you collect? Which tools will you use to collect data and why? - give the rationale for your plan)**:**

Cluster VI Module 2: Academic Research

Credits

Initial Module Conceptualization, Authoring and TPD sessions:	Ms. Meera Samson, Director and Senior Researcher at Collaborative Research and Dissemination (CORD), Delhi Ms. Anuradha De, Director at Collaborative Research and Dissemination (CORD), Delhi
Research and Coordination:	Mr. George Jose, Research Assistant, CETE, TISS Ms. Tanya Mittal, Program Manager, CETE, TISS

2.1 Academic Research : An Introduction

One of the most crucial aspects of Academic Research is to expand the knowledge base, drive progress and enhance understanding of a particular field. The module on Academic Research builds on the concepts learned in the previous module and provides them with the ability to develop critical thinking skills and enhance their problem solving abilities. The following module will delve deeper into how research is done in the field of academia. Through this module students will be able to cultivate their ability to communicate ideas effectively and present their findings in a coherent and structured manner. The findings of academic research studies can be presented in journal articles, in books, at conferences, as well as in other ways. When listening or presenting, it is important to remember that all research should clearly state what the objectives of the study are, what assumptions were made when deciding on the sampling and methodology, what checks and balances were put in place to ensure that it is based on reliable data, and what protocols were followed during the data analysis.

The module begins by laying out what academic research is – the various stages of a research study, and the kind of output of such a study in the form of a research paper. It then acquaints the student with the basics of quantitative research through various means, including an interview with a researcher who specialises in quantitative research methods, and the opportunity to carry out a small survey among friends in secondary grades. This is followed by a glimpse into the world of qualitative research, which includes an interview with a researcher who specialises in these methods, and a chance to practise asking questions and note-taking. Students also get an idea about academic research in different disciplines in social science and possible pathways to becoming an academic researcher. Finally, the students get to learn about the importance of communication in research and this includes the chance to examine the survey data collected and present the findings to fellow students. It is hoped that these elements in the module will make students familiar with the world of academic research, and provide them with a chance to think about whether they would like to be more involved in it as they move towards higher education.

The module further focuses upon how academic research is not restricted to a specific discipline but spans across various fields such sociology, science, literature, history and beyond. It enables the students to foster their creativity, think critically, question the established theories and seek solutions to real life problems. Students will be exposed to academic research papers and would learn how a good academic research paper is curated through literature reviews, designing experiments, collecting and analysing data, interviewing subjects or interpreting the existing research findings.

The focus areas of the module are:

1. To understand how academic research in social sciences is different from scientific research. They will be able to identify different elements of a research paper.
2. Introduce students to quantitative and qualitative research methods.
3. Interactions with a quantitative researcher and to a qualitative researcher
4. practise using a survey form (quant research) and an interview schedule (qual research)

5. working on research communication by presenting an analysis of a survey they conducted.

Prior Knowledge Required for the module

1. Prior knowledge of, and fluency in English till at least Grade 9 level is recommended.
2. Students should have a basic understanding of the terminology used in the process of research such as data collection, analysis, presentation of findings, research methods etc.
3. Prior exposure to research presented in popular media such as television or newspapers.
4. Knowledge of using the internet for finding information
5. Use PowerPoint to make presentation

Student Learning Outcomes

1. Students will understand how academic research in social sciences is different from scientific research. They will be able to identify different elements of a research paper.
2. Students will be introduced to quantitative research methods.
3. Students will be introduced to qualitative research methods.
4. Students will have a chance to listen to a quantitative researcher and to a qualitative researcher speak about their work..
5. Students will have a chance to practise using a survey form (quant research) and an interview schedule (qual research)
6. Students will work on research communication by presenting an analysis of a survey they conducted.

Concepts in the Module:

- Understanding what research in academic research in social sciences looks like by focusing upon the research papers
- Exploring and understanding how a research process is carried out and developing a deeper understanding of the academic research process
- Learning about the different methods of data collection i.e. qualitative and quantitative methods and through interactions with the researchers gain insights about the nature of work being done in the field
- Understanding the process of data collection and preliminary analysis
- Learning how to present the research findings
- Understanding how to develop a research proposal

Recommended Texts:

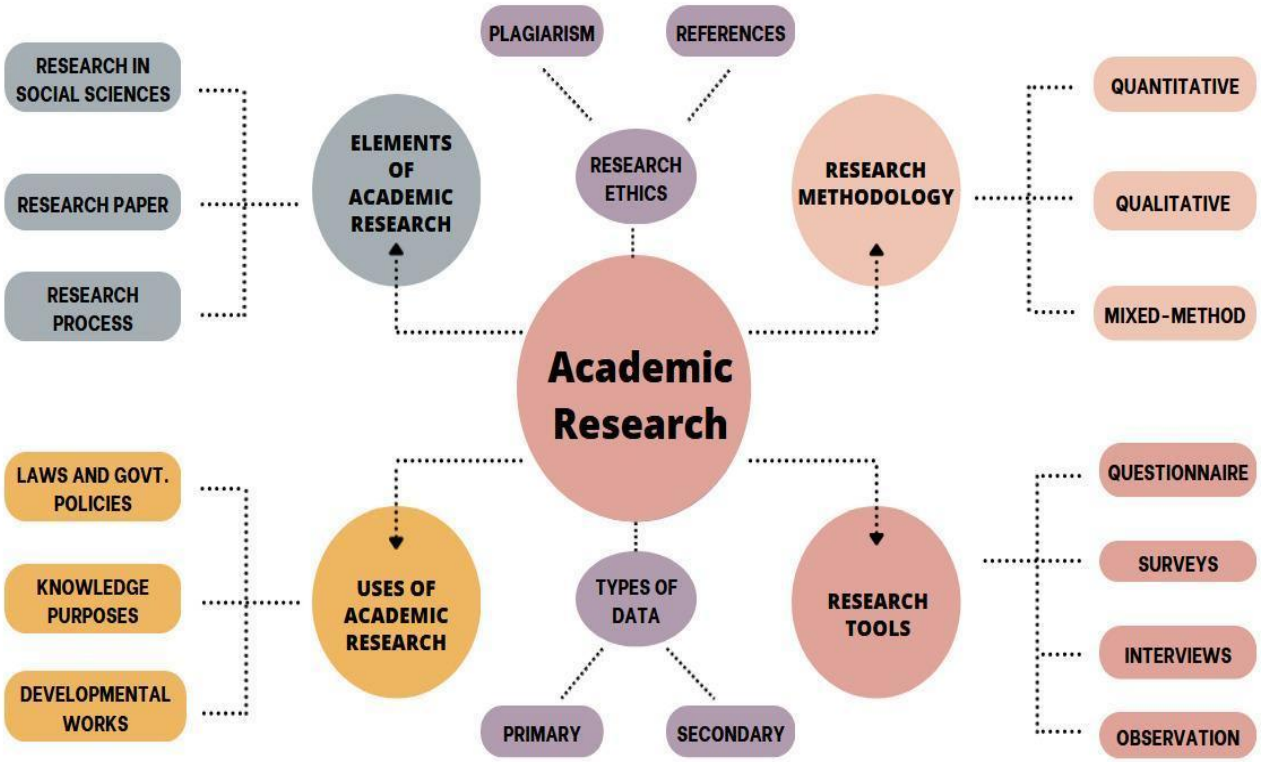
- An introduction to qualitative research. (2020, June 19). Scribbr. https://www.scribbr.com/methodology/qualitative-research/
- An introduction to quantitative research. (2020, June 12). Scribbr. https://www.scribbr.com/methodology/quantitative-research/

- How India taught the world the art of collecting data. (n.d.). BBC News. Retrieved July 7, 2022, from National Sample Survey: How India taught the world the art of collecting data - BBC News

- Rukmini,S. (2021) Whole numbers and half truths: What data can and cannot tell us about modern India (can scan some pages- very well written and clear): Westland

Module Overview:

Each week of the module will focus on a different theme. These themes are:



Module Assessment:

We will be assessing students on the following:

- Knowledge, understanding and application of the concepts
- Inquiry and exploration involved in curating a research proposal
- Presentation and communication of the research findings

Formative (Unit) Assessment of the module will be through the module project. The module project will test the following from the broader set of Assessment Objectives for the World of Work course:

Summative Assessment of the module will be through a written exam.

Formative Assessment		**Summative Assessment**	
Assessment Objectives	**Competencies**	**Assessment Objective**	**Competencies**
1.Inquiry and exploration	1.1 Identification of the problem for research and demonstrating a substantial understanding of the problem/issue at hand and describing why the research is important in sufficient detail (inquiry) 1.2 Creating research proposal with questions which are relevant, specific, and Researchable (exploration)	**1.Critical Thinking & Decision making**	1.1 Identify and use perspectives in understanding situations and issues (Critical Thinking) 1.2 Use creativity and original thinking in generating solutions (Creativity) 1.3 Adapt the concepts learnt in new and diverse contexts (Adaptive) 1.4 Interpret and comprehend self in relation to skills and careers (Awareness and Reflection)
2.Presentation and Communication	2.1. Able to present and communicate the research findings in a coherent manner.(present) 2.2. Ability to iterate and incorporate feedback to improve/refine the work (Iteration) 2.3 Able to use various multimedia mode of communication to present findings (communicate)	**2.Knowledge & Understanding**	2.1 Demonstrate command of the specialized vocabulary of specific skills and workplaces (Knowledge) 2.2 Summarise concepts about research using examples (Understanding)
		3.Presentation and Communication	3.1 Able to develop adequate research questions highlighting the research problem 3.2. Ability to iterate and present research findings (communication)

		4. Inquiry and Exploration	4.1 Ability to think of solutions to a research problem 4.2 Explore the various means through which the data can be collected and the methods that can be deployed

*SA will assess all the AOs to varying degrees

2.2 Lesson Plan

Week 1- Introduction to Academic Research

Objectives of the week

Important Concepts

- Academic research in social science
- Elements of research paper
- Features of a good quality research paper
- Research as a process
- Research questions
- Use of search engines
- Disciplinary difference within social sciences (economics, sociology, history etc) with regards to methods of data collection and analysis
- Different forms of research output such as books, research papers etc
- Credibility of a research

Learning Standards

1. Students will be familiar with the process of academic research.
2. Students will have an understanding of the structure of a research paper/ publication
3. Students will understand the use of academic research for policy-making

Summary

This segment of the module will introduce students to academic nature in the field of social sciences, the uses of it. The process of research from formulating the right questions, looking for literature through search engines, exploring the various ways in which the research findings are presented and how the credibility of a research is established are some of the important concepts that students will be learning about in this week.

Lesson Plan: Week 1 Day 1

Introduction to academic research in social sciences, Glimpses of a Research Paper

Classroom Inquiry Process	Resources
Lesson Aims: 1. Introduce the student to the academic research module 2. Identify elements of a research paper 3. Discuss what is a good quality research paper **Activity Title:** 1. Introducing Academic Research in Social Science (10 min) 2. Looking at a research paper - exercise (10 min) 3. Extension of activity 2- Structure of a research paper (20 min) 4. What is a good quality research paper? (20 min) **Activity Description:** **Activity 1. Introducing Academic Research in Social Science** *(discussion)* Teacher can start the session by asking the students to recollect the previous module. The teacher could remind students how research requires a spirit of enquiry, curiosity, critical thinking and analysis. ● Focus of this module is academic research in social sciences. To trigger discussion around academic research in social sciences, teacher could project the handout with different research titles on the smart board, and ask students to identify which one they think belong to natural sciences and social sciences.  Teacher can ask students what was their rationale behind categorizing research into natural sciences and social science or how natural science and social science research is different. ● Research in social sciences is for knowledge creation in the **study of human behavior.** ● In social science research, it is generally difficult to isolate the effect of one factor on another because so **many factors are working together**. For	Handout with research titles w1d1_research titles.pdf 

example – the choice of school may depend on many factors such as cost, distance, availability, and reputation.

- Explain how social science research differs from scientific research done in a lab. For example -we could use the example of the development of the covid vaccine, to explain how scientists work in a controlled setting - the exact temperature at which different vaccines have to be maintained. For social science, r**esearch settings cannot be controlled.**

(*note - there can be some research that are interdisciplinary and cut across these disciplinary barriers)*

Like Science, Social Science research also plays a vital role in enriching society. It helps in increasing our understanding of the social, economic, and political order of society and shapes public policy. This module will give us a glimpse into the world of academic research — elements of research paper, different stages in the research process, research methods used by social scientists, and research communication.

Activity 2. Looking at a Research Paper- Exercise

Teacher could ask students if they have come across findings from social science research and where they found it. Students might be able to recollect newspaper reports that have referred to research findings.

Tell students that one way through which social scientists communicate their research is through publishing research papers in academic journals or books. (Teachers can also show websites like **JSTOR** and **Research Gate** where the published journals can be accessed)

JSTOR: Open Access journals - About JSTOR

Research Gate: https://www.researchgate.net/

Printed copies of the published research paper (Singh et al, 2017, social media usage…) to be distributed to each pair w1d1_looking at the research paper_Singh_2017_Social Media Usage.pdf

In this activity, students will look at a research paper.

- Distribute a published research paper

Students work in pairs to answer the following questions in their workbook

(i) Title of the research paper
(ii) Name of the author
(iii) Name of the journal
(iv) Date of Publication
(v) Volume and issue number

Teacher to share answers and students can verify themselves

Activity 3. Structure of the research paper *(discussion)*
Teacher will use the distributed research paper to discuss the elements of the research paper.

- Ask students to look at the subheadings in the paper
- Students will understand that research papers follow a structure/format/pattern
    - **Introduction**
    - **Background of the Study and Literature Review**
    - **Research questions**
    - **Methodology used**
    - **Discussion and results**
    - **References**

(Not all papers will strictly follow this format. There will be variations in subheadings, but a good research paper will cover all these elements)

- Teacher can explain the structure of the research paper and reiterate that a good research paper has these elements
- **Abstract** - In most academic journals there is also an abstract. It is a brief summary of the research paper

Activity 4. What is a good quality research paper? *(discussion)*

Teacher can use the PPT to guide the discussion

- Students should be made aware that there are research papers of good quality and poor quality. A research paper could be weak if it does not follow an acceptable structure/pattern. It may be cut and pasted from another study (something which is looked down upon in academic research). This act of presenting someone else's ideas as your own without giving them any proper acknowledgement is known as **plagiarism.**

- Journals may be of good quality or poor quality. Teacher can discuss the process of peer-review where a research paper is evaluated by experts in the field before getting published.

  (the following video can be shown to students - https://www.youtube.com/watch?v=7Vc5bgyAXSU)

Qualities of a research paper PPT - w1d1_qualities of a good research paper.pptx

- A good quality research paper follows an acceptable structure/format/pattern
    - Elements are clearly explained
    - References indicate literature has been examined
    - Gives credit to the work of other researchers / not copying without acknowledging the source
    - Uses language/terms which are clearly defined/understood by fellow researchers
    - Can be published in a good quality academic journal/book or as a working paper.
    - Research should have a sound basis and be read and accepted by other researchers.

Lesson Plan: Week 1 Day 2

Exploring how a research study is done

Classroom Inquiry Process	Resources
Lesson Aims: 1. Students will understand how a research study is done 2. Students will be introduced to Google Scholar **Activity Title:** 1. Deciding on the objective of the study (what) - 10 mins 2. Explaining why it is important (why) – 15 mins 3. Deciding on the research methods (how) – 10 mins 4. Deciding on the location of the study (where) – 5 mins 5. Use of search engines – 20 mins **Activity Description:** Students will have some understanding of the research process from the previous module. Teacher can recap the steps learnt in the previous module. Using a PowerPoint on the elements of the research process (what, why, how and where are questions which have to be addressed). **1. Deciding on the objective of the study (what)** *(discussion)* What are the key research questions to be answered? Importance of questioning and critical thinking to be discussed. **2. Explaining why it is important (why)** *(discussion)* Importance of new research has to be explained in the context of what research has already been done/what is known/what the gaps are. The importance of questioning and critical thinking to be stressed here too. **3. Deciding on the research methods (how)** *(discussion)* Introduce how certain methods are useful for certain topics which involve measurement (quant); certain methods are useful for topics which require detailed information (qual). Some studies may involve both (mixed methods). **4. Deciding on the location of the study (where)** *(discussion)* Choice of states / districts. Should it be in urban or rural areas; if in urban, size of city can be considered; where in the city / town; if in rural, size of village maybe important; distance from town. **5. Use of search engines: Exercise** In this activity students will be introduced to Google Scholar Students are first asked to go to Google search engine and type the keyword 'mid day meal'. They can note down the websites and articles that they get from search results. Ask them if they are academic research articles or not. Next, introduce the students to Google Scholar - https://scholar.google.com/.	Powerpoint presentation (for activity 1,2,3, and 4) w1d2_elements of research process_for students.pdf

 Ask them to type the same key word ‘mid day meal’ in the google scholar and note down the results they get. Teacher to explain – If we use google, we will get results based on a variety of sources which include newspaper articles and blogs. Whereas Google Scholar is a dedicated search engine for academic research. When we want to look for literature (other research) we can make use of google scholar. Students can further explore google scholar by changing the keywords to find articles in the topic they are interested in.	

Lesson Plan: Week 1 Day 3

A deeper understanding of Academic Research in Social Sciences

Classroom Inquiry Process	Resources
Lesson aims: ● Students will understand who does academic research ● Students will understand how it is useful for formulating law and policy ● Students will understand additional features of academic research **Activity title:** 1. Who does academic research? (20 mins) 2. Use of academic research (15 mins) 3. Important elements of academic research (25 mins) **Activity Description:** **1. Who does academic research?** *(demonstration)* Students are given the first page of 5 articles which shows the affiliation of the authors of the paper. Exercise – ● Ask students to give names of organisations mentioned. ● Do they know anyone employed in these organisations or involved in academic research? Students can be asked to use the chromebook to look up these researchers and the organisations they are affiliated with. Bring to the notice of the students that research can be individual or multiple researchers could collaborate for a study. Explain that the major pathway to engage in academic research studies, is to pursue masters followed by a PhD. Researchers usually work as university faculty or associate with other organizations that undertake research (for example - public policy think tanks and civil societies also employ researchers) But there is scope to be involved in these research processes in other capacities as well, particularly when the project is large and is conducted over several years. The data collection process requires many enumerators/ investigators. There is a need for quantitative data collectors and survey supervisors and for people to interview and document qualitative interviews and group discussions. There are several organizations which have specialized in data collection, and provide a career opportunity. Research organizations also require research coordinators (more administrative work), data analysts, communication experts etc. **2. Use of academic research** *(discussion)* **Academic research adds to knowledge. In addition, it impacts human behavior by influencing laws and policy.** Teacher gives examples of how research has influenced law and policy.	Printouts of the first page of 5 articles. session 3_first pages of five articles Handout for teacher - who does academic research - week 1

● Research on the positive impact of “early childhood care and education” on future learning has led the government to invest in the anganwadi programme for the 3-6 year age group. ● Research on the negative impact of early marriage for maternal and child health has led to the government having a law for minimum age at marriage for girls and boys. ● Research on the importance of inclusion for CWD (Children with disability) led the government to give all CWD the right to be admitted in school and receive the support required. Different from market research which is in response to the need for understanding the demand for a product or increasing sales of a product. **3. Important elements of academic research** *(discussion)* –Research is a process with many stages. It has to be done systematically, and using methods which are accepted by other researchers. ● Students may be reminded of the process of doing a research study (Day 2) and the format of a research paper (Day 1). –Research should be seen as a community or collaborative work - engaging with people who have worked in the past/or are working at present on similar themes., ● Students can be reminded of the concept of the literature review mentioned on Days 1 and 2. This is a type of collaboration. ● Collaboration can be through working in a group of individuals to do a research study. ● Collaboration can be through organizations working together. ● It also occurs through researchers giving feedback to other researchers, if requested. –Research takes different forms depending on which of the disciplines it is based on. These include economics, history, sociology, and political science. Discuss with students what is taught in these subjects. Then give some examples of research: ● Researchers in economics may focus on issues involving measurement like income, and landholding. ● Researchers in history may look at a historical figure or a historical event. ● Researchers in sociology may study behavioral patterns of different social groups. ● Researchers in political science may look at election results. Some studies are multidisciplinary. –In studies which involve fieldwork, Understanding of language and culture plays a critical role. Getting permission before starting the data collection process is also critical.	Newspaper article Karnataka study shows eggs in mid-day meals help children’s growth | Education News,The Indian Express  Powerpoint on elements of academic research Session 3_Important elements of academic research  Research paper of day 1 and the powerpoint of day 2 could also be reused here

Week 2 - Introduction to Quantitative Research

Objectives of the week

Important Concepts

- Secondary and primary data
- Survey tools,
- data collection
- Sampling
- Tables and graphs- how they can present data

Learning Standards

1. Students will have a preliminary understanding of quantitative research methods and uses
2. Students will have an understanding of Census survey and sample survey
3. Students will be familiar with the some tools used in quantitative survey
4. Students will be able to fill up a questionnaire

Summary

The following week will focus upon the process of data collection and what are the types of data, the various methods through which data is collected and how a sample is drawn. The presentation and communication of the research findings is another crucial aspect that will be focused upon.

Lesson Plan: Week 2 Day 1

Understanding quantitative research method

Classroom Inquiry Process	Resources
Lesson Aims: A preliminary understanding of quantitative research methods and uses **Activity Title:** 1. Quantitative research methods (15 mins) 2. Examples of large secondary data sets (10 mins) 3. Collecting primary data:(15 mins) 4. Sampling and its importance (10 mins) 5. Quantitative data analysis(10 mins) **Activity Description:** **1. Quantitative research methods** *(discussion)* Refer to last session- research questions which require measurements use quantitative research methods. What is quantitative data - data collected through questionnaires where answers are either numbers or coded. Usefulness of quantitative data methods. Policy makers like evidence based on large numbers - quantitative research methods allow that. Quant data is very important in the field of economics. 2. **Examples of large secondary data sets** *(discussion)* - discuss some large data sets with different sets of respondents. - Example (choose 2 from Census for population characteristics, NSSO for employment details, This will facilitate discussion of sampling. - Use a map of India to explain - Who are the respondents and the focus of the study? **3. Collecting primary data-The process and tools used** *(exercise)* Exercise: Plan a research study - Students will be asked to design a research question on the topic "private tuitions" like: What type of private tuition do secondary students go to? Have a discussion on the topic with the students. Then show them an example of a simple questionnaire for the study and they can ask each other. **4. Sampling and its importance-** *(discussion)* Refer to the census - where all households are covered. Discuss why sample survey is preferred. Different types of sampling - random, purposive. Representativeness and why sampling is so important. **5. Quantitative Data Analysis**- *(discussion)* Stages of data cleaning and data entry before data is analyzed. Explain that data is analyzed using specific software. Presented using graphs and tables.	Powerpoint for activity 1 to 5 15 handouts on secondary data sets and sampling (few pages of the census and NSS schedules) Can also explore the websites: Population Census 2011 One-page quantitative questionnaire– 6 copies per student (a copy to all students to fill in the class and 5 copies to use for the survey) Link: session 4_student questionnaire- private tuition.pdf

Show a sample table with respondents in different age groups - using frequencies and percentages. Make charts- columns and pie charts - and explain. Tables and graphs should have a clear title, source, labels. *Distribute the quant questionnaire and ask them to fill 5 questionnaires which they will have to bring back on day 3 of this week. This will be part of their internal assessment also.*	15 sheets- with a sample table and two graphs.

Lesson Plan: Week 2 Day 2

Learning from the experiences of Quantitative Researcher

Classroom Inquiry Process	Resources
Lesson Aims: 1. Understanding what a quantitative researcher does? 2. How do they ensure data quality and data security? 3. Possible pathway towards becoming a quantitative researcher? **Activity Title:** 1. Video of interview of a researcher/project director. (20min) 2. Discussion based on the interview: (30 min) 3. Worksheet based on interview- (10 min) **Activity Description:** 1. Explain what the video is about, who is being interviewed. Ask them to make notes- of what work the interviewed researcher did, what was the latest study done, any point they could not understand 2. Discussion: what they could understand, what was not clear. Explain, if required, Which task they found interesting. Which task they thought was difficult. Discuss their experience and what other pathways are possible. Video can be shown again if required	**Video -** Interview with a researcher

Lesson Plan: Week 2 Day 3

Data collection and preliminary analysis in quantitative research

Classroom Inquiry Process	**Resources**
Lesson aims: 1. A preliminary experience of doing survey and analysis 2. First steps towards data analysis. 3. Hands on experience of data presentation - tables and charts **Activity title:** 1. Compiling data-(20 min) 2. Demonstrating data analysis and graphs- (25 min) 3. Discussing findings (15 min) **Activity Description:** 1. **Compiling data** Teacher will make groups of 5 students according to the number of students in the class. They bring their survey data and together compile data of each group on a worksheet. The data from the worksheets are compiled together on the blackboard. Teacher puts the data on excel sheet 2. **Demonstrating data analysis and graphs** Through discussion some basic frequencies are calculated. For example- the subjects taught, time taken, tuition fees. Using software, sample graphs are made. Discussing titles and headings. **3. Discussing findings** Through discussion, the main points of the study are discussed.	Worksheets to compile data by students Excel dashboard to enter data by teacher

Week 3 - Introduction to Qualitative Research

Objectives of the week

Important Concepts

- Qualitative research methods are very different from quantitative research methods:
- Research questions are different – mostly related to “how” and “why”
- Emphasis is on getting a deeper understanding of your subject
- Methods of data collection are different
- Methods of analyzing data are different
- Methods of presenting data are different
- Research study must build on existing research
- Research study must follow norms accepted by other researchers

Learning Standards

- Students will learn about qualitative research methods.
- They will understand why qualitative research methods are useful.
- Students will have examples of disciplines/subjects where such methods are commonly used.

Summary

The following week will be focusing upon the various ways in which qualitative and quantitative research methods vary from each other, what are the situations in which qualitative research methods prove more effective.

Lesson Plan: Week 3 Day 1

Understanding qualitative research method

Classroom Inquiry Process	Resources
Lesson Aims: 1. Understand what is qualitative research 2. How data is collected in qualitative research 3. How data is analyzed and presented in qualitative research 4. Subjects where qualitative research methods are more commonly used **Activity Title:** 1. What is qualitative research? (25 mins) 2. Tools used in qualitative research (20 mins) 3. Data analysis and presentation of findings in qualitative research (5 mins) 4. Examples of research in sociology and political science. (10 mins) **Activity Description:** **1. What is qualitative research?** Teacher will use slides for students to understand what is meant by qualitative research methods. **2. Use of tools in qualitative research** Teacher will use slides for students to understand the different ways data is collected when doing qualitative research. Teacher will share examples of interview schedules; observation; and group discussion. **3. Data analysis and presentation of findings in qualitative research** Students will understand that this is done differently from studies focusing on quantitative data. **4. Research in sociology and political science.** Discuss examples of research in sociology and political science.	Powerpoint for 1-4 Handouts with types of schedules

Lesson Plan: Week 3 Day 2

Interview with a qualitative researcher

Classroom Inquiry Process	Resources
Lesson Aims: 1. Students will be introduced to concepts of qualitative research methods through an interview with a qualitative researcher. 2. Students will get practice in observation, note taking, and reflecting on their own responses. **Activity Title:** 1. Introduction to the video and the exercise (15 mins) 2. Listening to a video recording of an interview with a qualitative researcher. (20 mins) 3. Students continue to write notes after the interview. (10 mins) 4. Discussion based on the students' responses. (15 mins) **Activity Description:** 1. **Introduction to the video** – the teacher tells the students about the interview with the qualitative researcher for them to understand more about qualitative research; and that they are going to practice observation and note-taking. Students are given 4 points to note. ● Describe the 2 persons in the video and the place where they are sitting. (observation about age, gender) ● How does the interviewer encourage the person to keep speaking? (observation about body language, words used) ● What was said about the usefulness of qualitative research? (note-taking) ● Note what you liked or didn't like about the interview. (conscious of your own responses) **2. Listening to a video recording.** **3. Students continue to write notes.** **4. Discussion based on the students' responses.**	Video: Interview with a qualitative researcher Handout with 4 points. Half a page for each response. (added in student workbook)

Lesson Plan:Week 3 Day 3

Data collection and preliminary analysis in qualitative research

Classroom Inquiry Process	Resources
Lesson aims: 1. Students learn about how to use an interview schedule with open ended questions. 2. Students practice asking questions and noting answers. 3. Students learn about some basic principles of data analysis.	
Activity title: Use of mobile phones 1. Studying "use of mobile phones" using an interview schedule with open ended questions. (10 mins) 2. Exercise – Students ask each other open-ended questions on use of mobile phones. (25 mins) 3. Discussion on the exercise. (25 mins)	Students given a schedule on the use of mobile phones among young people in Delhi
Activity Description: 1. **Studying "use of mobile phones" using an interview schedule with open ended questions**.. Students are given a schedule on use of mobile phones, which is discussed in the class so students get familiar with the questions.. Reminded about how such an interview schedule should be like a conversation, and that detailed note taking is required.. 2. **Exercise – Students ask each other open-ended questions on use of mobile phones.** Write answers very carefully. 3. **a. Discussion on the data gathering process**.	
Teacher asks the respondents – did the interviewer explain what they were doing clearly; get their permission before starting; listen carefully to their responses Teacher asks the interviewers – was the respondent comfortable with answering questions. Were they able to take detailed notes? **b. Discussion on the students' responses during the interview.** Teacher to ask 1-2 students to share answers to each question. **c. Discussion on data analysis** What does the class note from this exercise? ● Are there any points which are mentioned in many of the interviews? ● Are there any unusual responses? ● Which question did your respondent answer in more detail. ● What have you learnt about the use of mobile phones among the few students interviewed for this research?	2 Students will practice using the schedule.

Week 4 - Presenting research findings

Objectives of the week

Important Concepts

- Main research Findings
- Use of audio-visuals for effective communication
- Making a Powerpoint presentation on research findings

Learning Standards

- Students will be able to communicate their research findings

Summary

The last week of the module will be focusing upon the different ways in which research findings are communicated. Students have previously studied about the various methods of data collection. Students in the previous week had carried out a survey on private tuitions, in this week they'll be required to discuss the main findings and present them using multimodal

Lesson Plan: Week 4 Day 1

Introduction to internal Assessment, understanding research presentations

Classroom Inquiry Process	Resources
Lesson Aims: 1. Introduction to communication of research findings 2. Understanding how to use audio-visual or PowerPoint for presentation 3. How to identify main findings for presentation **Activity Title:** 1. Introducing the guidelines for the group project and dividing into groups (10 min) 2. Demonstrate examples of research presentations (20 min) 3. Students work in groups (30 min)- **Activity Description:** **1. Introducing the guidelines** *(handout given to students. Teacher explains the guidelines)* ● Discuss the project and what they need to do on each of the 3 days. ● Explain that they will need to present the quantitative study they have already done - on private tuition ● Divide the class into 4 groups- 7 to 8 students in each group. **2. Research presentation: Discussion** Discuss Different types of presentations- Only verbal presentation, Using visuals/video or audio (usually for history or photograph of political personality or a song), using powerpoint presentation- most common. Show excerpts of a presentation to demonstrate use of graphs, photos, quotations – Excerpts from education presentation.pptx In the above presentation the structure is as follows: Slide 1 – gives name of the study Slides 2 and 3 give details of methodology. Slide 4 gives details of sample size. Slides 5-11 give 3 of the findings with graphs and photos. Slides 12-14 show the use of quotations. Slides 15-17 provide an example of giving a few points for conclusion.	1. Guidelines for presentation - Guidelines for formative assesment Presentation 2. Assessment rubrics - Internal assesment design_Academic Research.pdf 3. Sample template - Template for presentation.pptx

3. Students work in groups: Exercise: Go through the data collected in week 2 ● Discuss the research question - (what type of private tutors do secondary students go to, and some of the sub questions- subjects taught, costs of tuition etc) ● Then look at what were the main findings and select a few important ones and write them out. ● Check if any graphs or tables are there to support the findings. They can be used for the presentation. Teacher to guide each group in their exercise. If required explain to them what the main findings are *(There are 3 parts to the quantitative tool- details about respondent, details about tuition centre (distance, no. of students, no. of hours, fees, subjects) and why the tutor is chosen. The main findings would relate to points 2 and 3.)*	 Teacher to give copy of graphs made using the dashboard in week 2 for all groups

Lesson Plan: Week 4 Day 2
Draft presentation for the research paper

Classroom Inquiry Process	**Resources**
Lesson Aims: 1. Make a draft presentation for the research paper **Activity Title: Final Presentation** 1. Students work in groups (40 min) 2. The teacher gives feedback for the drafts (10 min) 3. Revise presentation (10 min) **Activity Description:** **1. Students work in groups** ● Share the responsibility of the presentation and make draft slides for each section - using the template ● Decide on the title of the study. Discuss sampling. . ● Share a draft presentation with the teacher ● Decide on the presenters and discuss what will be said verbally with each slide **2. The teacher looks at the powerpoints and gives feedback for the drafts** **3. Revise according to her comments** If possible add visuals, photographs etc, add colors and designs	

Lesson Plan: Week 4 Day 3

Internal Assessment - Final presentation of the study by groups and discussion

Classroom Inquiry Process	**Resources**
Lesson aims: 1. Each group to make presentation, and then discuss which slides are more effective and why **Activity title:** 1. Final Presentation 2. Feedback and Reflection **Activity Description:** A final powerpoint is used and each group makes the presentation - in 10 minutes. All students should try to follow the presentation and ask questions or clarifications. After final presentation, discussion on which slides communicated well and why	

2.3 Module Project

As part of the module the students are supposed to present their research findings on the research question given in the initial class i.e which type of private tuition do secondary students go to. The students will be presenting their research findings in the final session. The project will be introduced to the students during session 9. Students will be asked to create a presentation using audio visual means for effective communication of the research findings, the presentation will discuss the research question - (what type of private tutors do secondary students go to, and some of the sub questions- subjects taught, costs of tuition etc).

The students have to divide the work among themselves. They will need to reflect on the data they have collected and present their key findings.

For the presentation, they need to plan the following slides.

(i) Research questions and objectives (What?).
(ii) Where and when is the study conducted
(iii) research methods (How?). Who are the respondents? Total number of respondents. Tools used - survey questionnaire.
(iv) Research findings- This is the main part - from the analysed data select 3 main findings for presentation. All data need not be presented.
(v) Conclusion- respond to research questions.

The outcome of the project is a PowerPoint. Sample template for the presentation will be given to the students.
The time limit for the presentation is 10 minutes. The group should practice and check if they are able to keep their presentation under 10 minutes.

The students will be assessed on their ability to present the study in a PowerPoint and verbal presentation.

Points to remember for a good presentation

- Short and clear presentation- under 10 min
- Cover slide: Title of the paper, names of presenters
- Need to decide on two to three main findings to present - not too many details
- Audio-visuals or powerpoint helps the audience to listen and remember. Can use photographs.
- Each slide should have very few points or an infographic with a short text.
- The notes to accompany the presentation are very important. The powerpoint is a tool for presentation.
- Important to get the audience interested, use the right tone, and be confident.
- Language used and examples will depend on the audience- different if presenting to students, or if presenting to adults.
- Need to practice.

2.4 Formative Assessment Rubric

Score point	1-2	3-4	5-6	7-8	Evidence
Criterion B: Inquiry and Exploration	The objective of activity is minimally met. The research questions articulated are incorrect The analysis of data is not answering the research question	The group follows most of the instructions and most objectives are met. The research questions articulated are mostly correct, but only some of the questions are answered using the data. Not able to identify all key research findings.	The group follows all instructions in executing the activity and the objectives are met. The research questions are identified and articulated fairly. Most of the research questions are answered using the data. The key findings are mostly apt and answers the research question.	The group follows all instructions in executing the activity and the objectives are met. The research question and subquestions are well articulated, and the data from the survey is analysed correctly. The group correctly mentions the research methods and the sample. All the key research findings are identified and it answers the research questions.	In an exemplar presentation, all the following information will be present: 1.Research questions and objectives (What?). 2. Where and when is the study conducted 3. research methods (How?). Who are the respondents? Total number of respondents. Tools used 4. Research findings- (This is the main part - from the analysed data select 3 main findings for presentation. All data need not be presented) 5. Conclusion- respond to research questions.
Criterion D: Presentation and Communication	Not all slides mentioned in the guidelines are presented. The slides are not concise and the presentation crosses the time limit.	Most of the slides mentioned in the guidelines are presented. The slides are not concise and the presentation crosses the time limit.	Most of the slides mentioned in the guidelines are presented. The slides are concise, neat and the presentation is completed in (10 +2) minutes.	All the slides mentioned in the guidelines are presented. The slides are concise, neat and the presentation is completed in under 10 minutes. Graphs, tables and other infographics are	The slides will be concise with bullet points and the presentation should adhere to the time limit of 10 limits. Consistently presents their thoughts and ideas such that the audience is enlivened and impacted. The ideas expressed seamlessly connect to each other and there is a flow in the communication.

	No use of infographics or tables.	Minimal use of infographics	Some infographics, graphs and tables are included.	used for efficient communication.	The presentation should use infographic, tables, and graphs for effective communication.

2.5 Teacher Professional Development Guide

The Teacher Professional Development Guide is designed to assist with the delivery of professional development sessions on the module: 'Academic Research'.

OBJECTIVES

Objectives of the TPD Training of the module -

a. Unpack the term 'academic research in social sciences' so teachers understand the role it can play in our world, and why it is useful for students to learn about it.
b. Elaborate on the different components of an academic research study.
c. Introduce quantitative and qualitative research methods so teachers can see how different they are, where they are most useful, and that they can complement each other.
d. Explore different ways in which research findings are communicated - research papers, newspaper articles or OpEds, blogs, policy briefs
e. Explain to the teachers the possible career pathways in academic research.

SCHEDULE OF THE TRAINING

The training would be conducted online through five sessions stretched across five days. Each session would be of two hours duration.

OVERVIEW OF THE TRAINING

Session 1	Unpacking the term 'academic research in social sciences' so teachers understand - The role it can play in our world, - How it differs from market research or newspaper pieces - why it is useful for students to learn about it.	2 hours
Session 2	Different components of an academic research study. - Research question, literature survey, research methodology, sampling, data analysis and research findings.	2 hours
Session 3	Introduce quantitative and qualitative research methods . Quantitative research methods - concepts discussed in detail	2 hours
Session 4	Qualitative research methods - concepts discussed in detail	2 hours

	Compare qualitative and quantitative research methods. Mixed methods studies	
Session 5	Different ways in which research findings are communicated- published research papers, blogs, opinion pieces, policy briefs . Some possible career pathways in academic research?	2 hours

Session 1

1. Use some research papers and abstracts (could use those for the modules) - and discuss. Highlight the fact that a research study focuses on particular issues or research questions. In contrast to opinion pieces where research may be referred to, but more as evidence behind the opinion expressed. These papers can be used to highlight who does research, and how it's a collaboration. From these discussions come up with the following concepts and ask the teachers to note.

- What is research – a broad term used for looking carefully into a subject.
- What is academic research – a specific type of research with its foundations in different areas of study. Different from market research, for example. Academic research is a process with many stages. It has to be done systematically, and using methods which are accepted by other researchers. It is more of a community or collaborative work - engaging with people who have worked in the past/or are working at present on similar themes.
- What is academic research in social sciences – largely focused on studying human behaviour. Discuss some research topics in science and social sciences. The social sciences include economics, sociology, political science, and history. This is the focus of this module.
  It is different from scientific research (e.g. in physics, chemistry, biology).

2. Important role played by academic research in social sciences.
   An open discussion on why academic research can be useful.

- Leads to the development of new theories through testing hypotheses. Eg More educated women have fewer children. It also shows that while this is largely true, the impact of higher education on the number of children varies in different geographical, economic and social contexts. There are studies to investigate the causal relationship -- why is this trend observed and why are there variations. This can be connected to reiterate that social science research is focused on human behaviour - and hence the results are of different nature from scientific research.
- Provides evidence for policy - what policy is likely to have greater impact.
  Why there may be adverse impacts for a policy which is good on paper - depends largely on how human behaviour responds to changes.

  Also use some examples from market research - which also studies a particular type of human behaviour -- their preferences and consumption decisions - and is focused on improving sales of particular goods or services. (eg Byju's – it appears a lot of market research has been put in to reach out to a large clientele – for both private tuition and coaching classes).

3. To discuss why it is important for students to understand this

- The word research is very broad and students need to know firstly that there is a difference in findings which have a scientific basis and people's opinions, and second, that there is both academic research and market research, undertaken with different objectives.
- Academic research is undertaken in universities and research institutions, and may not be visible in social media or in books accessed by the adolescent age group. Students need to know that it exists. They need to be able to explore what is credible academic research and what has a very weak basis.
- Students should also know that there are job opportunities in this sphere which they may be suited for if they have done higher studies in social sciences.

Session 2

1. Use the powerpoint to discuss "Elements of the research process". The teachers can be divided into 2 or more groups, each decide on a research topic and work through the different sections with some hands-on practice - using those topics.

- Study must have clearly defined research questions. Answering the question – What are we studying?
- Literature survey – Review of studies on this subject. Answering the question – Why are we focusing on these research questions? What is known from earlier research studies?
  This involves extensive reading on the research issue - the reading list to be compiled through use of search engines. The readings will make the researcher understand the issue better, and relook at the research question.
- Methods you will use and why. Answering the question – How are we going to do the research? This depends on what our research questions are and what methods the earlier studies have used. A short discussion on quantitative and qualitative methods.
- Where will you do the research? One location or more than one (Urban and / or rural areas; Choice of State, district, block). How you select will depend on your research questions, research methods and what is practical.
- Choosing your sample – From a list of all households / families. Which will you choose and how?
- Choosing your respondents within a family – Which member in the family? Male / female; elders / parents / children

2. Follow it up with a discussion on how in studies which involve fieldwork, the researcher needs to be sensitive to many aspects.

- Understanding of language and culture plays a critical role.
- Getting permission from local authorities before starting the data collection process also needs to be done.
- Asking individuals for their consent is essential.
- Assuring them that their data will be kept confidential is also critical.
- Using a protocol to keep the data confidential is necessary.

Session 3

Academic research may use quantitative research methods, qualitative research methods, or a mix of both. As we discussed in Session 2, this is part of the research process. The research question has been decided, what existing research says on the subject has been studied, and now the methods to be used have to be decided. In this session, we will focus on quantitative research methods.

Use quantitative research powerpoint to discuss its uses and methods

- Allows you to take a bird's eye view.
- More suited to what can be measured - such as numbers, price, distance etc.. But can use coded responses- to analyze responses (yes/no is converted to 1 and 2, answers to questions like why and how can be coded into possible responses, use of 'other' as a quantitative response)
- Can cover a large number of respondents - while the time taken to collect data increases, there are softwares for data analysis which allows analysis of large data sets in a limited time. Larger the sample, the more reliable the results.
- Studies using these methods require strong mathematical skills.

Usefulness

- Helps to estimate composition and changes - such as in population -- increase in numbers, caste, religion and gender composition etc, poverty levels and changes over time, employment - different types etc.
- Can be used to make comparisons over time or between different locations.
- Helps to estimate the impact of some factors on other factors- impact of education on income etc, impact of increase in population on demand for foodgrains
- Policy makers like evidence based on large numbers - quantitative research methods allow that.

<u>Secondary and primary data, survey tools</u>

Quantitative research requires data sets - either use existing large data sets (secondary data) or collect data from the field (primary)

- Discuss some of the common secondary data sets usually collected by the Government of India and focus more on census and NSSO. Can refer to COVID statistics, DISE data etc.
- Discuss some examples of primary data collection - ASER survey data, or give examples of collecting data in specific areas
- Use the census handouts to discuss who the respondents are, what type of questions are asked in a quantitative survey. Can jointly think of a simple research question (use of private and govt. health care facilities - interviewing households about when did they last go to a doctor or a hospital) and think of possible quantitative questions
- Sampling is an important concept -- who should be interviewed, all households, or a smaller proportion, how will they be chosen (random versus purposive).

<u>Data analysis</u>

Data analysis is the next step when data is collected. The analysis will depend on the research questions. For example Census data is used to find population composition (male- female, different caste groups, different religious groups), and changes over time. So the percentages of different groups are calculated to get the composition. The change in these percentages over time shows how population composition changes.

- Different methods of quantitative data analysis. Use handouts of tables and graphs to explain percentages, and cross tabulations
- Usually tables are used to present data analysis -- graphs are also very useful in highlighting major trends. Use of handouts to show and explain.
- Use of software - researchers do not need to do elaborate calculations. The software uses the data set and makes tables, graphs etc and also more complex data analysis.

<u>Session 4</u>

Introduce qualitative research methods and discuss where they are most useful.

1. What are qualitative research methods?

- Gives you a worm's eye view
- Suited to study a small number of locations and a small number of respondents because you go deep into your subject.
- Studies using these methods require strong language skills.

2. Such studies may use one or more of these tools.

- Interview schedules with open ended questions to encourage the respondent to talk in detail. e.g. "Tell me more."
- Observation – Useful to study what actually happens.
- Focus group discussion – Respondents feel more confident to speak than if alone

3. Small details are given importance so responses are noted at length and recording is used if permission is given.
   Context is considered valuable data to help understand the respondent and his / her responses. (What was the physical setting? Any relevant details observed about the respondent.)
   Data analysis is slow and laborious.

4. Usefulness

- To answer questions "how and why" related to human behaviour.
- To study topics which are not possible / not easy to measure.
- The emphasis is not on enabling comparisons across a large number of sites and/or a large number of respondents.

5. Briefly we can go over the main differences between quantitative and qualitative research methods.

Quantitative research methods

- Allows you to take a bird's eye view.
- More suited to what can be measured.
- To make comparisons over time or between different locations.
- To check causal relationships
- Uses surveys to cover many respondents.

Qualitative research methods

- Gives you a worm's eye view
- More suited to doing in depth study of fewer respondents.
- Useful when you want to answer the question "how" related to human behaviour.

6. How can quantitative and qualitative research methods complement each other?

Examples of research studies that combine both quantitative and qualitative research methods.
Example 1

- A qualitative research study may be done in one location to get an idea of what factors may be

affecting a particular outcome.

- Based on these findings, a large survey may be designed to collect quantitative data on the factors which were found to be important.

Example 2

- A quantitative survey may be done which covers a large number of households.
- This can be supplemented by a qualitative research study in a small number of households selected from the large sample to study a chosen subject in depth.

Session 5

a. Explore different ways in which research findings are communicated.

Discuss with the teachers about research studies they know of -
If they cannot suggest any, refer to studies based on ASER or NAS - and discuss.
Where can they get informed about such studies?

Different types of communication are used for researchers (academic papers, seminars), Stakeholders (workshops, presentations), general public (newspaper coverage, blogs etc),
Use handouts (examples of newspaper articles, powerpoint presentation of findings - PROBE, blogs)For instance teachers can be shown the following investigative article on the potential ecological impacts of chemical complex near gulf of Kutch which is based on the critical report on Marine Environmental Impact Assessment by CSIR- National Institute of Oceanography.

Investigative article:
https://theprobe.in/investigations/potential-ecological-impacts-of-chemical-complex-near-gulf-of-kutch-in-gujarat-ignored/

Report: https://gpcb.gujarat.gov.in/hearingpdf/MEIA_Summary_English.pdf

Communication methods depend on the audience. For an academic audience, communication about the research process is critical for the findings to be considered seriously. They also are interested to know what is new in research.

For other audiences- policy makers, all stakeholders and citizens - the findings, applicability in different contexts, and recommendations are more important. So when NAS data is analyzed and results communicated- for citizens information is provided through newspapers or pressnotes etc about the performance levels of the students, students of which states have higher learning levels in different subjects. For policy makers and other stakeholders, there are policy briefs which have more detailed analysis and recommendations to improve learning levels. In academic papers It is important to write about how the students tested were chosen, what sort of tests have been administered and how the tests are marked and aggregated.

Use of infographics, photographs, quotes help communication to a wider audience. (can use the PROBE powerpoint as a handout for this)

b. What are some possible career pathways in academic research?

This should start as an open discussion.
Start with who does research - individuals, academic institutions, govt and non-govt individuals and organizations -- foundations, think tanks and policy makers
Who works in each of these?
Using the handout (from the first week), one should define the different career pathways - from researchers -- academic, government departments, NGOs, think tanks etc. Funding organizations, research associates, research assistants, ethnographers, statisticians, data surveyors, data analysts. What are the academic requirements, training and other pathways

Reference Material

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2.6 Student Workbook

Introduction

Ⅰ.Ⅰ World of Work

One of the components of the vision for Schools of Specialized Excellence (SoSE) is increasing exposure of students to careers and the world of work. However, career domains today are not straightforward and are becoming exceedingly integrated. Students require a multidimensional and interdisciplinary approach. Separately, the best education globally offers students abundant opportunities for project-based learning, development of higher-order thinking skills and development of soft skills.

The World of Work (WOW) course aims to address all the above requirements during the 9th and 10th grades for the SoSE schools of the Humanities stream. The course is designed as a series of 1 month (16 classroom hours) 'taster' modules that explore different skills and careers in the humanities and social sciences. The modules are designed as a skill module, paired with career modules. Skill modules address a workplace skill that has wide applicability across a range of careers. Each skill module is followed by 2 career modules which are strongly associated with the skill and which develop further on the skill. For example, the Transmedia Storytelling module is followed by Journalism and Content Creation as career modules. Each module is a 16 hour exploration and is delivered via discussions, expert guest speakers ('masterclasses'), digital content, field visits, projects and assignments. These modules are critical in enabling SoSE students to make informed choices and prepare in advance to succeed in their chosen career pathways.

Students learn in various ways in the World of Work course. In developing the modules a priority has been to provide interesting and vivid teaching material including videos and presentations. Classroom discussions are an important part of the session and students learn from each other as well as develop their confidence and spoken communication. Expert guest speakers and field visits offer rare and privileged opportunities to experience a profession. Assignments and project work take them out of the classroom to engage with the environment they live in. These also demand developing time management, creativity, working collaboratively and good presentation skills. All this nurtures students for all round development and at the same time sets them up for success in their chosen area of specialization.

The role of the teacher in the World of Work is challenging and rewarding. The teacher is not an expert in the subject material, even though there is extensive teacher training. Therefore they act more as facilitators for the students' learning. They do need to stretch their boundaries to familiarise themselves with all the skills and careers in the course. Group and individual projects are an integral part of the course and facilitating these and managing the ambiguity inherent in evaluation of projects is a new skill to be learnt. Classroom discussions are a vital part of the course. The teacher must adapt to all these new formats of running a class. They have to give up their tried-and-tested methods of teaching and try on new ones – a humbling experience. The rewards for the teacher are in the tangible growth and development of the students in areas like confidence, presentation and communication. The teacher will also experience significant personal and professional growth in the process.

Assessment is an important part of the World of Work. The course is meant to be rigorous and not limited to the level of awareness-raising or exposure. The course delivers specific skills and concepts that the students are expected to understand, internalize and apply. The assessment framework has components of "Knowledge and Understanding", "Inquiry and Exploration", "Critical Thinking and Decision Making" and

“Presentation and Communication”. Assessment of each module of WOW will draw from the above set of components and be tailored to the module. Internal assessment of the modules will be usually through the module project, while the summative assessment could be through a variety of formats including mini-project or different types of sit-down exams.

I.III Overview of the curriculum

The World of Work course is designed as a series of 1 month (16 classroom hours) ‘taster’ modules that explore different skills and careers in the humanities and social sciences. The modules are designed as a skill module that is paired with one or more career modules. Skill modules address a workplace skill that has wide applicability across a range of careers. Each skill module is followed by 2 career modules which are strongly associated with the skill and which develop further on the skill. For example, the Transmedia Storytelling module is followed by Journalism and Content Creation as career modules.

The following table gives the full list of modules that will run in the World of Work curriculum.

Skill Area	Career Pathway 1	Career Pathway 2
Transmedia Storytelling	Journalism	Content Writer
Mapping and Visualization	Geographic Information System (GIS) Analyst	Urban Planner
Working with People and Communities	Social Work	
Enabling Learning	Teaching	
Justice and Constitution	Lawyering	Public Policy
Research and Critical Thinking	Academic Research	Marketing Research

The first 3 rows show the modules that run in 9th Grade and the next three rows the modules that run in 10th grade.

Below shows the classroom time allocation for the modules and the number of instructional days they will run over.

S.No.	Modules	Suggested time allocation/Instructional days
Grade 9		
	Unit 1: Transmedia Storytelling	16 hours/12 days
	Unit 2: Journalism	16 hours/12 days
	Unit 3: Content Creation	16 hours/12 days
	Unit 4: Mapping & Visual Representation	16 hours/12 days
	Unit 5: Cartographer / Geographer	16 hours/12 days
	Unit 6: Urban Planner	16 hours/12 days
	Unit 7: Working with People & Community	12 hours/ 9 days
	Unit 8: Social Work	12 hours/9 days
Grade 10		
	Unit 9: Enabling Learning	12 hours/ 9 days
	Unit 10: Teaching	12 hours/ 9 days
	Unit 11: Justice and Constitutional Values	16 hours/12 days
	Unit 12: Lawyering	16 hours/12 days
	Unit 13: Policy Advocacy/Public Administration	16 hours/12 days
	Unit 14: Research and Critical Thinking	16 hours /12 days
	Unit 15: Academic Research: Historian/Sociologist/Economist	16 hours/12 days
	Unit 16: User Research / Market Research	16 hours /12 days

Note the exceptions to the standard format: In two skill areas, “Working with People and Communities” and “Enabling Learning”, there is a single career module associated with the skill module. In these two cases, the skill module runs for three weeks and the career module for three weeks. In these cases, the skill and career modules are tightly integrated rather than running as individual modules.

Ⅰ.Ⅲ Objectives of the curriculum

- To give the students a very wide area of exploration that leaves them with an understanding of the world of work at large. They are also shown interconnections between modules and clusters and realize the interdisciplinarity of the world of work.

- To develop a range of skills (the skills of the skill modules) that will continue to be useful to students in their future irrespective of the specific career path they choose.
- To give the students sufficient information and engagement with skills, careers and workplaces so that they can start a deeper process of focussed exploration in skills and professions as designed for the 11th & 12th grades. In a few cases, the students will have gained enough clarity from the course that they will make a decision on their own about their career goal and independently plan and work towards reaching it.
- To develop their ability to do independent work and thinking, to deliver projects, and work collaboratively.
- To develop skills of critical thinking and creativity.
- To enhance students' presentation skills in different modes and media.

Ⅰ.Ⅳ Curriculum Framework

The course consists of a sequence of skill and career modules. These modules are grouped into related clusters. A cluster will contain a skill module and 2 (or 1) related career modules.

A skill module introduces the students to a particular skill or skill area that is widely required for many careers. In this course the students are introduced to 5 skill areas in the Social Sciences and Humanities which gives them a good range of knowledge. By practicing these skills, students develop themselves with a wide range of skills. Simultaneously they have the opportunity to find out if they have an aptitude for or interest in that skill. Discovering such interest and aptitude can be an enormous boon to the student - if they find a niche they are happy with, they start exploring and developing on their own and the future unfolds with ease and fulfillment. While it is not possible to develop a skill in-depth in the time available, the engagement with the skill does result in concrete learning outcomes.

Career Modules explore a career that is strongly connected to the skill in that cluster. Career modules explore the career from multiple perspectives:

Skills: The career module builds on the work done in the skill module to develop the skill further in the context of the particular career. For example the Journalism career module will take storytelling to the context of Journalism.

Career Roadmap: The career module will talk about a way to join that career ie. what subjects to choose for 11th & 12th grades, what degree courses are appropriate, what are the premier colleges, what communities of practice exist, relevant skills to develop etc.

'A Day in the Life': The career module also gives students an idea of what work in that career looks like. Practitioner interactions are a very effective way to do this.

Is this for me?': The various interactions and experiences of the career module helps the student build some evidence for whether this is the direction they want to take. The intention is not however that the student should decide by the end of 10th grade.

Career modules will have sub-areas or may cover a career *area*. For example, Content Creation is a career area which covers careers in Graphic Design, Content Writing, Film-making and more. Journalism is considered a career, but there are a wide range of sub-options by media and types of writing eg. news reporting, news analysis, photography, video journalism etc.

Ⅰ.Ⅴ About this handbook

The Students' Handbook for Academic Research has been developed with the objective of providing students with the crucial information and guidance required to understand the module. The handbook

emphasizes the importance of critical thinking, intellectual curiosity, and academic integrity in the research process. It encourages students to engage in thoughtful inquiry, challenge existing assumptions, and push the boundaries of knowledge. Through the lens of academic research, students will develop skills that extend beyond the realm of academia, such as problem-solving, analytical thinking, and effective communication. It covers a wide range of topics, including research design, literature review, data collection and analysis, writing and presenting research papers, and ethical considerations in research.

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Cluster VI Module 2: Academic Research

Student Planner

Session	Topic	Objectives and Description	Readings
		Week 1	
Session 1	**Introduction to academic research in social sciences, Glimpses of a Research Paper**	1. To understand the concept of academic research 2. To identify elements of a research paper 3. To discuss what is a good quality research paper *In this session we will be focusing upon the concept of academic research in social sciences. We will also be looking at how it differs from the research in natural sciences. In addition to this we will be looking at a research paper to understand its nuances and learn what exactly is a good research paper.*	
Session 2	**Exploring how a research study is done**	1. To understand how a research study is done 2. To learn about Google Scholar *In this session we will be looking at the elements of the research process (what, why, how and where are questions which have to be addressed). We will also be looking at how Google scholar is a specific search engine for academic research by looking at various articles related to key words we search.*	
Session 3	**A deeper understanding of Academic Research in Social Sciences**	1. To understand who are the people responsible for conducting an academic research 2. To look at the various ways in which it is useful for formulating laws and policies 3. To look at the features of academic research *In this session we will be focusing upon the people and organizations who are involved in carrying out academic research, what are the different uses of doing this research and the distinct features it encompasses.*	

Week 2			
Session 4	**Understanding quantitative research method**	1. To build the conceptual understanding of quantitative research *In this session we will be looking at what quantitative research is, what are the different research tools that it encompasses and how the analysis is done. We will also be looking at how sampling is done under quantitative research methods.*	
Session 5	**Watching an interview with a quantitative researcher**	1. To understand what a quantitative researcher does 2. To learn how data quality and data security is ensured 3. To understand the possible pathway towards becoming a quantitative researcher *In this session we will be focusing upon understanding the experiences of a researcher who has undertaken a quantitative research, major steps in their research work and how they became a researcher*	
Session 6	**Understanding data collection and preliminary analysis in quantitative research**	1. To have a preliminary experience of doing survey and analysis 2. To have a hands on experience of data presentation - tables and charts *In this session we will be looking at compiling the data gathered in the previous activity, analyzing it and presenting the data in the form of tables and charts.*	
Week 3			
Session 7	**Understanding qualitative research method**	1. To understand what is qualitative research 2. To understand how data is collected in qualitative research 3. To learn how data is analyzed and presented in qualitative research 4. To understand the subjects where qualitative research methods are more commonly used *In this session we will be focusing upon the*	

		concept of qualitative research, how data is collected, analyzed and presented through qualitative research methods.	
Session 8	**Watching an interview with a qualitative researcher**	1. To watch and learn the process of qualitative research by viewing an interview *In this session we will be focusing upon understanding the experiences of a researcher who has undertaken qualitative research, major steps in their research work and how they became a researcher.*	
Session 9	Understanding data collection and preliminary analysis in qualitative research	1. To learn about how to use an interview schedule with open ended questions. 2. To practice asking questions and noting answers. 3. To learn about some basic principles of data analysis. *In this session we will be focusing on carrying out an interview based on the schedule provided and learn about analyzing the data thus gathered.*	
Week 4			
Session 10	**Introduction to internal Assessment, understanding research presentations**	1. To understand how to communicate research findings 2. To learn how to use audio-visual or PowerPoint for presentation 3. To identify main findings for presentation *In this session we will be looking at the ways of communicating the research findings in a cohesive and clear manner. We will also be looking at the usage of Powerpoint as the tool for presenting the main data findings.*	
Session 11	**Draft presentation for the research paper**	1. To make a draft presentation of the research paper *In this session we will be making a draft presentation of a research paper prepared through the data collected in week 2 research question.*	

Session 12	**Internal Assessment - Final presentation of the study by groups, and discussion**	1. To make the final presentation of the research paper. *In this session we will be looking at the final presentation by the groups on the research paper prepared. The findings will be presented through the means of a powerpoint followed by a whole class discussion.*	

Cluster VI Module 2: Academic Research

Introduction to Academic Research in Social Sciences

In our everyday life, we might casually use the word ‘research’ for the act of looking up information on the internet for a school project or comparing items to buy. But this is not what is meant by ‘academic research’ — it has to follow an established method and contribute to a body of knowledge.

(examples of academic research in natural science and social sciences. Circle the research topics which you think belong to social sciences)

Research in social sciences is carried out for studying social groups and human behavior. It is different from scientific research done in labs or controlled environments. For example, when scientists were working on the development of the Covid Vaccine, they could control factors like temperature. But in social sciences, it is difficult to control research settings. It is also generally difficult to isolate the effect of one factor on another because so many factors are working together. For example, you might be interested in studying how the choice of school is dependent on tuition fees, but there will be many other factors such as distance, availability, and reputation affecting the choice of school.

This module will give us a glimpse into the world of academic research — different stages in the research process, research methods used by social scientists, and research communication.

Write down the difference between academic research in science and social sciences.

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Looking at Research Paper

Look at the research paper given to you and answer the following questions.

a. Title of the research paper

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b. Name of the author(s)

_____

c. Name of the journal

_____

d. Date of publication

_____

e. Volume and issue number

_____

Structure of Research Paper

One of the common forms of bringing your research findings to the research community is by publishing a research paper in an academic journal. A research paper is generally written in the following structure.

(Not all papers will strictly follow this format. There will be variations in subheadings, but a good research paper will cover all these elements)

1. **Introduction** - This is an outline of the research paper
2. **Background of the Study and Literature Review** - This section describes the rationale for undertaking the research. There will be already existing literature[1] (research studies) on the topic. In the literature review, the author(s) describe what we already know, and what we do not know (the gaps in knowledge), and explain how the research will help in filling those gaps.
3. **Research questions -** A research study will have clearly defined research questions. This section explains 'what' the research objectives are.
4. **Methodology used -** The methodology section explains the methods and tools used by the researcher to collect data for answering the research question
5. **Discussion and results** - This section reports the findings of the research and the implication it has.
6. **References** - Research is built on top of the work of others. The reference section is the list of previous works that have been used (referred) to conduct the research.

Abstract - In most academic journals there is also an abstract given on the first page. It is a brief summary of the research paper. In addition to the abstract, the first page might also include keywords (these are the words or phrases that are helpful when you are searching for literature).

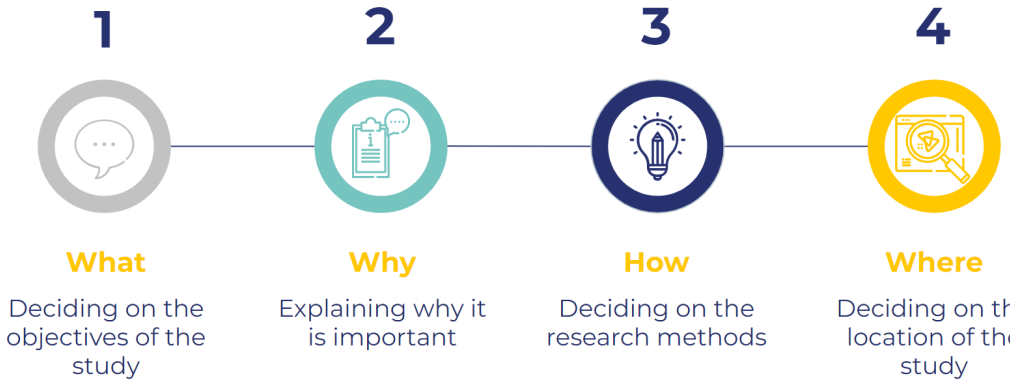
[1] Literature in academic research refers to the existing research studies that are available for reference

What is a good quality research paper?

There are research papers of good quality and poor quality. A good quality research paper follows an acceptable structure/format. Research should have a sound basis and be read and accepted by other researchers. In a good quality research paper:

- Elements are clearly explained
- References indicate literature has been examined
- Credit given to the work of other researchers / not copying without acknowledging

Elements of Research Process



1. **What are we researching?-** The research study must have clearly defined objectives and research questions.
   Example for research question - 'How does midday meal help in school education?'

2. **Why are we doing this research? -** We must be able to explain why our research is important. For this, we will have to do a literature survey (looking through already existing research). This process will help us understand how other researchers have approached the problem, what they have already found and what is left to be found.

3. **How are we going to do the research?** - The answer to this question will depend on our research questions and objectives. Broadly there are two types of research methods.

(i) Quantitative research methods -	**(ii) Qualitative research methods** -
If our research question has to be answered by measuring variables, describing frequencies or averages, or comparing quantities, we go for quantitative research methods.	If our research question has to be answered in-depth, we have to choose qualitative research methods.
Through quantitative methods, we will get a bird's eye view as data is gathered from a large number of respondents	This gives us a worm's eye view as data is gathered from a few respondents, but will have in-depth information.
Eg *"Do more educated mothers have fewer*	Eg *"how has the education of mothers impacted*

children?' Quantitative research methods are more suited here– we can compare the family size of mothers who are illiterate, with some education and those who have secondary education.	*their decision to have fewer children?*" Qualitative research methods may be more suited here as this helps us explore this question in an open-ended way with mothers.

Some studies may involve both quantitative and qualitative methods and are called **mixed-method research**.

4. **Deciding on the location of the study (where) -** After finalizing our research methods, we will have to decide the location(s) to conduct the research depending on our research questions and practicalities. We have to decide if the study will be conducted in urban or rural areas; if in urban, the size of the city can be considered; where in the city/town; if in rural, the size of village may be important.
   After deciding on the location, we will also have to decide on the participants (sample) of our study. We will have to decide which families/households we will be studying and choose which member in the family to be studied – Male/female or Elders/parents/children etc.

Google Scholar Exercise

Use the keyword ‘mid day meal’ and search in Google and Google Scholar (Google Scholar). Note down the differences in the search results. What kind of websites and articles are displayed in the search results?

Google	Google Scholar

Who does academic research?

Look at the first pages of five research articles and write down the affiliation of the authors of the paper.

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Use of Academic Research

Academic research adds to knowledge. In addition, it impacts human behavior by influencing laws and policy. Examples of how research has influenced law and policy:

- Research on the positive impact of “early childhood care and education” on future learning has led the government to invest in the anganwadi programme for the 3-6 year age group.
- Research on the negative impact of early marriage for maternal and child health has led to the government having a law for minimum age at marriage for girls and boys.
- Research on the importance of inclusion for CWD (Children with disability) led the government to give all CWD the right to be admitted in school and receive the support required.

Disciplinary Differences with Social Sciences

Research takes different forms depending on which of the disciplines it is based on. These include economics, history, sociology, and political science.

- Researchers in economics may focus on issues involving measurements like income, and landholding.
- Researchers in history may look at a historical figure or a historical event.
- Researchers in sociology may study behavioral patterns of different social groups.
- Researchers in political science may look at election results.

Some studies are multidisciplinary.

Understanding of quantitative research methods and uses

Quantitative research is the process of collecting and analyzing numerical data. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations. Quantitative research is the opposite of qualitative research, which involves collecting and analyzing non-numerical data (e.g., text, video, or audio). It is widely used in the natural and social sciences: biology, chemistry, psychology, economics, sociology, marketing, etc. Policy makers like evidence based on large numbers and through quantitative research methods we can and interpret large amounts of data. For instance, to understand data collected for Census and NSSO for employment details, quantitative research methods will allow us to see the patterns and make generalizations in the form of numerical data.

Sampling

When we conduct research about a group of people, it's rarely possible to collect data from every person in that group. Instead, you select a sample. The sample is the group of individuals who will actually participate in the research. To draw valid conclusions from your results, you have to carefully decide how we will select a sample that is representative of the group as a whole. This is called a sampling method. There are two primary types of sampling methods that we can use in our research:

- Probability sampling involves random selection, allowing you to make strong statistical inferences about the whole group.
- Non-probability sampling involves non-random selection based on convenience or other criteria, allowing you to easily collect data.

(Source:https://www.scribbr.com/methodology/sampling-methods/)

Data is collected from the chosen sample through various research tools such as questionnaire, survey, interviews, observation and document review. The collected data goes through stages of data cleaning and data entry before it is analysed. It is analysed using specific softwares such as SPSS, RStata, SAS, JMP. and then presented using graphs and tables.

To understand how a questionnaire is administered, look at the activity given on the next page.

(Instructions: Choose class 9 and Class 10 students who live near you and take private tuition). Ask the following questions, and write the correct code.

Questionnaire on private tuition

Your name ---------- ----------

1	Name		
2	Age (in completed years)		
3	Gender	1 = Male 2 = Female	
4	Class enrolled	1= class 9 2= class 10	
5	School type	1= Government 2= Private	
6	Do you take tuition?	1 = yes 2 = no	
7	How many tutors do you have?	1=1 2= more than 1	
8	Where do you take tuition?	1= in my house 2= Very close to my house 3= quite far from my house	
9	How many hours in a day do you take tuition?	1=1 hour 2=2 hours 3= 3 hours 4= more than 3 hours	
10	How many months in a year do you take tuition?	1= less than 6 months 2= 6 to 9 months 3= more than 9 months	
11 a	Do you take tutions in English	1 = yes; 2 = no	
11 b	Do you take tuitions in Maths	1 = yes; 2 = no	
11 c	Do you take tutions in Science	1 = yes; 2 = no	
11d	Do you take tutions in any other subjects	1 = yes; 2 = no	
12	How many students study together?	1= 1 student 2= 2 to 5 students 3= 5 to 10 students 4= more than 10 students	

13	What is the monthly fee?	1= less than Rs. 500 2=Rs. 500 to Rs. 1000 3= Rs. 1001 to Rs. 1500 4= more than Rs. 1500	
14	Why did your parents choose this tutor?	1= Because its close by 2= Because the fees is low 3= The tutor teaches very well 4= Others students from my area go there 5= Any other	

Understanding Qualitative Research

Qualitative research involves collecting and analyzing non-numerical data (e.g., text, video, or audio) to understand concepts, opinions, or experiences. It can be used to gather in-depth insights into a problem or generate new ideas for research. It is the opposite of quantitative research, which involves collecting and analyzing numerical data for statistical analysis.

Qualitative research is commonly used in the humanities and social sciences, in subjects such as anthropology, sociology, education, health sciences, history, etc. It is used to understand how people experience the world. While there are many approaches to qualitative research, they tend to be flexible and focus on retaining rich meaning when interpreting data. Common approaches include grounded theory, ethnography, action research, phenomenological research, and narrative research. They share some similarities, but emphasize different aims and perspectives.

Qualitative Research Methods

Each of the research approaches involve using one or more data collection methods. These are some of the most common qualitative methods:

- Observations: recording what you have seen, heard, or encountered in detailed field notes.
- Interviews: personally asking people questions in one-on-one conversations.
- Focus groups: asking questions and generating discussion among a group of people.
- Surveys: distributing questionnaires with open-ended questions.
- Secondary research: collecting existing data in the form of texts, images, audio or video recordings, etc.

Data Analysis

Qualitative data can take the form of texts, photos, videos and audio. For example, you might be working with interview transcripts, survey responses, fieldnotes, or recordings from natural settings.

Most types of qualitative data analysis share the same five steps:

1. Prepare and organize your data. This may mean transcribing interviews or typing up fieldnotes.
2. Review and explore your data. Examine the data for patterns or repeated ideas that emerge.
3. Develop a data coding system. Based on your initial ideas, establish a set of codes that you can apply to categorize your data.
4. Assign codes to the data. For example, in qualitative survey analysis, this may mean going through each participant's responses and tagging them with codes in a spreadsheet. As you go through your data, you can create new codes to add to your system if necessary.
5. Identify recurring themes. Link codes together into cohesive, overarching themes.

(Source:https://www.scribbr.com/methodology/qualitative-research/)

Interview Schedule and Data Analysis

Look at the study given below and read it carefully, after which you are required to take up the role of an interviewee/interviewer in pairs and fill up the interview schedule.

Study – Use of mobile phones among young people in Delhi

Objective – This is a small study to explore use of mobile phones among young people in Delhi.

Research question – We know that mobile phones play a critical role in the lives of young people. Through this study, we are interested to capture details about this critical role, and how young people themselves see it.

Sampling – Our choice of respondent is important. They should be in the 15-25 years age group, and should have a mobile phone. We may want to speak to a mix of men and women, and a mix of those in different age groups (15-18 years; 19-21 years; 22-25 years).

Introducing yourself and the study – We have given a sample introduction.

About the schedule

We are asking a few questions and next to each question are suggestions about how you should take each question further. Each question is like a small conversation. You want to encourage the respondent to talk. If they stop, you look interested, and you could say, "Tell me more".

The schedule has 7 questions. These are suggestions. You can add questions which you think might be useful.

The questions will give us data on different categories.

<u>About the respondent</u>

Question 1 gives us the age and gender of the respondent.

Question 2 tells us if they are studying or working or doing housework or a combination. We get to know if they are earning.

<u>About the respondent and the type of mobile they own</u>

Question 3 gives us important details about the kind of phone they have and how they may have got it. Gives us an idea of their financial situation.

Question 4 asks them to tell us what they like about their phone.

<u>About the use of the phone</u>

Question 5 comes to the use of their phone for fun activities.

Question 6 comes to the use of their phone for essential activities.

<u>About what the respondent thinks about the importance of the phone in his life</u>

Question 7 explores the importance of their phone in their life.

The interview tells us a story about each person who is interviewed.

Interview schedule – Use of mobile phones among young people in Delhi

Introduction

- Hello! My name is …… and I am in class … in ……..school.
- We are doing a small study on the use of mobile phones among young people in Delhi.
- Can I ask you a few questions on this subject? We are talking to young people in the age group of 15-25 years.
- The interview will take 10 mins, and will be completely confidential. No personal details will be shared with anyone.

1. Can you tell me about yourself (name, age,)?
   Name: Age: Gender:

2. Can you tell me about how you spend your day (studying in school; college; looking for a job; any type of employment; housework).

3. Mobiles have become such an important part of our lives. Can you tell me about your current mobile phone? (smartphone or not? How and when did you get it? Who chose it? Paid for it? Approximate cost)

4. Tell me a bit about why you like this particular model. (features, price, design)

5. What fun activities do you use your phone for? (talking to friends; whatsapp; instagram; FB; looking on google if you want to find out something; others…)

6. Can you tell me about any study or work-related activities in your day for which a mobile phone is essential. (online classes; employer communicates about schedule at work)

7. How would your life be if you didn't have a mobile phone? (any time when you are not checking it; how important is it to you)

Difference between Qualitative and Quantitative Research Methods

In the table given below, mention the distinct features of qualitative and quantitative research methods.

Qualitative	**Quantitative**

Mind Map

Create a mind map of all the concepts you've learnt in the academic research module.

Cluster VI Module 3: Marketing Research

Credits

Module Conceptualization, Authoring and TPD sessions:	Mr. Ashish Kulkarni, Blogger at Econforeverybody, prior Assistant Professor at Gokhale Institute of Politics and Economics
Research and Coordination:	Ms. Manvi Suyal, Research Assistant, CETE, TISS
	Ms. Tanya Mittal, Program Manager, CETE, TISS

3.1 Marketing Research : An Introduction

This module aims at developing an interest in the skills needed to be a marketing research professional. All organizations, large and small, cannot survive without marketing. The marketing department may be small or large, formally defined or otherwise, but it is a critical function within the organization. With larger and more complex organizations, marketing assumes an ever more important role. Students today need to be aware of what marketing is, and how research within and about the marketing department is conducted. Furthermore, it is important to have students be acquainted with the related techniques and above all, they need to develop an understanding of how their current curriculum helps them become better working professionals within the domain of marketing research.
The module provides the students with an opportunity to be familiarised with the nuances of the process of marketing, understanding the importance of market segmentation, identifying the target audience and devising strategies. Marketing research in essence provides insights that help businesses identify opportunities, develop effective marketing strategies, and meet customer needs. By conducting research, companies can gain valuable information about their target audience, their preferences, purchasing behavior, and perceptions of products or services. The module aims to familiarise students with the uses and the concepts involved in the process of marketing research. In the previous modules students have learned about research as a systematic process, however the nature of research aso varies depending upon the kind of discipline it is being done in. Research in the field of marketing is different from the one in the field of academia, students would understand the differences and the similarities which the process of research entails through this module.

Focus area of the module:

- Art and science of marketing
- Key processes involved in the process of marketing
- Statistics and marketing
- Understanding sampling, FGDs and ethnographic survey

Prior knowledge required for this module:

- Prior knowledge of, and fluency in English till at least Grade 9 level is recommended.
- Understanding of the basic concepts of research
- Familiar with the marketing campaigns, television advertisements and other forms of multimedia campaigns

Learning Outcomes of the Module:

- Students understand the relevance and importance of marketing in the case of an organization
- Students understand the need for a marketing research process within the marketing department
- Students become familiar with which skill-sets are required to become a professional in this field
- Students gain a degree of familiarity with the components of a typical marketing research projects
- Students gain an understanding of how subjects that they are currently studying are relevant to becoming a better marketing research professional

- Students develop an understanding of quantitative and qualitative skills related to the domain of marketing research

Concepts in the module

- An understanding of the processes within a marketing department
- Defining the relevant target group and coming up with an appropriate sample for analysis
- Data Collection and Analysis (developing tools, administering them, analyzing data in a scientific manner, and understanding how perspectives and tools can change the process and outcome)
- Effective Communication
- An understanding of how marketing research, and the marketing department are critical to the functioning and well being of the organization

Module Overview:

Module Assessment:

We will be assessing students on the following:

- Knowledge, understanding and application of the concepts
- Presentation and communication of the findings
- Inquiry and exploration involved in the process of data collection

Formative (Unit) Assessment of the module will be through the module project. The module project will test the following from the broader set of Assessment Objectives for the World of Work course:

Summative Assessment of the module will be through a written exam.

Formative Assessment		Summative Assessment	
Assessment Objectives	**Competencies**	**Assessment Objective**	**Competencies**
1. Critical Thinking & Decision making	1.1 Use creativity and original thinking in writing stories (Creativity) 1.2 Adapt the concepts learnt in new and diverse contexts (Adaptive)	**1. Critical Thinking & Decision making**	1.1 Identify and use perspectives in understanding situations and issues (Critical Thinking) 1.2 Use creativity and original thinking in generating solutions (Creativity) 1.3 Adapt the concepts learnt in new and diverse contexts (Adaptive) 1.4 Interpret and comprehend self in relation to skills and careers (Awareness and Reflection)
2. Presentation & Communication	2.1 Demonstrate clear and confident presentation of thoughts and ideas (Coherence) 2.2 Ability to use multimedia and multimodal forms of communication effectively (Versatility) 2.3 Ability to iterate and incorporate feedback to improve/refine the work (Iteration)	**2. Knowledge & Understanding**	2.1 Demonstrate command of the specialized vocabulary of research involved in the field of marketing (Knowledge) 2.2 Recognising the nuances of research involved in different disciplines and able to build connections between them(Understanding) 2.3 Able to provide well structured answers with proper reasoning

		3. Inquiry and Exploration	3.1. Demonstrate the ability to provide valid sources of data and appropriate research methods through exploration 3.2 Ability to provide strong justification and argument for choosing a particular data source
		4. Presentation and Communication	4.1 Clear communication of thoughts and ideas 4.2. Able to provide clear connection between different ideas

*SA will assess all the AOs to varying degrees

3.2 Lesson Plans

Week 1: Introduction to Marketing

Objectives of the Module

Important Concepts

1. What is marketing and what is its importance? What are its components?
2. How does one think about collecting data to establish facts? How do these facts shape or change a decision maker's opinions? How do they ultimately influence decisions?
3. What does the planning for a marketing research project look like?

Learning Standards

1. Students get a sense of what marketing is and its importance to an organization
2. Students try to explore the intersection of data, analysis and decision making in marketing
3. Students begin to develop a sense for the life-cycle of a marketing project

Summary

The following week will provide students with the basic understanding of the marketing research process, what are its uses and how it influences our everyday lives. Students will also be focusing upon the role data plays in the process of marketing research and how it intersects with analysis and decision making.

Lesson Plan: Week 1 Day 1

What is marketing research? Why is it important?

Classroom Inquiry Process	Resources
Lesson Aims: 1. To help students understand what marketing is 2. To give students a sense of the importance of marketing in the world today 3. To help students understand that everything that the firm does, is, in a sense, marketing 4. Identify instances of marketing that students have already been doing in their own lives **Activity Title:** ● Setting the tone/Context Setting/ Introductory Activity (10 mins) ● Discussion on activity and BB/WB work (20 mins) ● Group-Work: Case Stories and presentation (20 mins) ● Sum-up, Distribution and instructions for take home assignment (10 mins) **Activity Description:** ● **Warm-Up (5-10 minutes):** Begin with the introductory activity - "What features should a phone designed for 15 year olds have?". Refer to the attached handout for details. Give the class a minute or two to think about which answer is their favorite, and which answer is their least favorite. Ask them to discuss this with the person sitting next to them for a couple of minutes. Then ask students to raise their hands for A, B and C options, and note which is the most (and least) popular. **Discussion Prompts** ● **Why do you think (A/B/C) was the most popular answer?** ● **Do you think the answer would have been different if we had asked your parents instead? Why?** ● **Whom should we be asking this question, you or your parents? Why?** ● **Which option would you have wanted to add to A/B/C? Why?** ● **Do you think the answers would have changed if we asked people slightly older than you? Younger than you? In a different part of India? In a different part of the world?** ● **Can you think of times when you have marketed your own work (in school or at home)?**	**Lecture 1 activity** 

(Note for the Teacher: Ask the students which other products they would like to think about instead of a smartphone. What about launching a new school? What about a sports facility? What about a new political party? What about a new hospital? Help the students realize that questions like these are inevitable for ***all*** products being launched by ***all*** organizations. Ask students to reflect on why getting the answers to questions such as these is important. Ask students to reflect on whether marketing will also involve marketing the organization ***itself*** to new employees. Also emphasize the difference between marketing and selling.) Before the class finishes, ask the class to reflect upon, and discuss with people at home, the second-last discussion prompt question. We will use this as a way to begin the second class.	

Lesson Plan: Week 1 Day 2

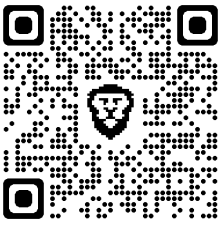
Whose opinions should we be asking? Why?

Classroom Inquiry Process	**Resources**
Lesson Aims: 1. To help students understand what a target group is 2. To give students a sense of the importance of getting the "right" target group 3. To help students understand that target group opinions are important, but not the only thing that matters in marketing research 4. How should we begin to think about analyzing the data that we will gather? **Activity Title: Understanding the key characteristics of a market research** 1. Reflection on the question that Day 1 ended with. Get responses from 4 to 5 students and have the class reflect on how the responses help us decide whom to ask questions, regarding the smartphone in question (10 minutes) 2. Open Discussion: whom should we target for doing our analysis about features that our proposed smartphone should have? (15 minutes) 3. Watch a video about India's changing demographics (we'll have to come up with a suitable video, preferably in Hindi) Demographic Transition in India - 4 Phases | Geography UPSC, IAS, CDS, NDA, SSC CGL (15 minutes) 4. How do we reconcile what we learnt in the video with what we learnt through the open discussion (10 minutes) 5. We know what we want to build, we think we know whom to ask. What comes next, and how do we go about it? This is an introduction to what will happen in the next class. (5 minutes) 6. Summing Up (5 minutes) **Activity Description:** 1. Recap: Reflect on what we learnt in the previous class, and ask students to share reflections they've had since being in that class. 2. Get students to think about who is likely to be the decision maker when it comes to purchasing a smartphone for 15-18 year old's. Will it be the children themselves? Or is it more likely that the parents will decide? What about grandparents? Whose views are likely to be the most influential? The absence (or presence) of which features is likely to be a deal-breaker (or deal-clincher) for which group? Guide the discussion towards the eventual realization that each of these groups will need to be asked, but ***also*** get the students to realize that we can't be sure of which group is likely to be the most important	Video on demographic transition in India

3. The video about demographics should lead to a discussion about which group is the largest. This doesn't necessarily tell us which group will be the most important when it comes to decision making, but have the students hit upon the realization that India is a mostly young country, and this is therefore likely to be a product that will be popular. 4. The follow-up discussion should be guided by the teacher to reflect upon three key things: a. Market sizing b. Identifying decision makers c. Identifying priority features …are the three things that marketing research seeks answers to. A market research exercise almost always has these components at heart, and we need to emphasize their importance while learning marketing research. 5. Ask the students to reflect on what they think comes next in the process that they've been a part of so far, and make a note of some of the suggestions 6. Wrap-up	

Lesson Plan: Week 1 Day 3

The key components of marketing research

Classroom Inquiry Process	Resources
Lesson aims: 1. To help students understand the key components of a marketing research process 2. To help students understand the importance of the sequencing of the components 3. To help students become more aware of some of the limitations of such an exercise **Activity title: Key components of marketing research** 1. Reflections on what we've learnt so far on Days 1 and 2 (5 minutes) 2. Choose five students to lead the five different components, and ask them to write on a chart paper (or on five different chart papers) these components: Scoping | Sampling | Questionnaire Design | Data Collection | Data Cleaning and Analysis (5 minutes) 3. Refer to the activity sheet for details on how to explain each component, and assign the rest of the class to each of these five teams (20 minutes). 4. After the presentation of one team, the others may add on to it or give their feedback. (20-25 minutes) 5. Summarize and reflect (5-10 minutes) **Activity Description:** 1. Recap: Reflect on what we learnt in the previous class, and ask students to share reflections they've had since being in that class. 2. Either on a single chart paper, or preferably five separate ones, write out the five parts of a market research process, and explain what each one is about, using the details shared in the activity file. 3. Once the class is split into five "teams", ask each team to brainstorm what might go into each component. Let the students have free rein while listing out ideas, and in the second half, ask them to think about feasibility: budgetary constraints, manpower constraints, time constraints 4. Use this phase to have teams get an appreciation of what might be possible, and lead the discussion towards how the entire project might therefore begin to come together.	**Lecture 3 Activity** 

Week 2: An Introduction to quantitative research

Objectives of the module

Important Concepts

1. What is a good way to think about the basic idea in statistics?
2. How can we apply this understanding to the field of marketing?
3. What are the limitations of statistical analysis in marketing?

Learning Standards

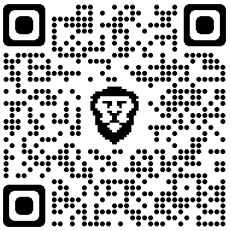
1. Students get an intuitive understanding of what statistics brings to the table
2. Students develop a sense of how statistics can be used in marketing
3. Students develop a sense of how far statistical research can take you in marketing, and its limitations

Summary

The second week of the module focuses upon the concept of statistics and its importance. The module further focuses upon its relation with marketing. Students will also learn about how statistics aids the process of marketing research and what are the limitations of it.

Lesson Plan: Week 2 Day 1

What is statistics? Why is it important?

Classroom Inquiry Process	Resources
Lesson Aims: 1. To help students understand the key objective in statistical analysis 2. To give students an introduction to the key idea (as opposed to the formulae) in statistics 3. To help students understand that any process that generates data is amenable to statistical analysis **Activity Title: Statistical analysis** ● Setting the tone/Context Setting/ Introductory Activity (10 mins) ● Discussion on activity and BB/WB work (30 mins) ● Debrief (10 mins) ● Sum-up, Distribution and instructions for take home assignment (10 mins) **Activity Description:** 1. Ask students to think about the time it ***usually*** takes them to reach school. Ask them if there have been days in the recent past (past six months or so) when it has taken them much longer. Ask if there have been days when it has taken them much less time than usual. Ask how this might be shown graphically in their own, individual cases. For instance, on the x axis we can take time (0-10, 10-20, 20-30, 30-40……) and the y- axis can be used to represent the frequency of responses for each time slot. What if we wanted to show this for the whole class at once? 2. Now ask four or five students to talk about their most memorable day in terms of the commute (coming to school from home). Something remarkable that took place on the streets while they were travelling, or a day that was especially cold/foggy/rainy. Ask them to give an estimate of the time it took them to commute that day. 3. Now ask the whole class the following: are these "special" commute times really special? How far do they have to be from the typical commute time for us to call them special? How can we be "objective" about this? See this resource for more information on how to conduct this step. 4. Does the shape of the commute bell curve change the answer? Why or why not?	

Activity 2: Signal to Noise Ratio

5. Ask students to rate their opinion of Kurkure on a five point scale. Each student can judge Kurkure to be one of the following:
   Very Bad | Bad | Average | Good | Very Good
   Note on a board/chart paper all the responses by creating a frequency chart, and see what kind of distribution emerges
6. Introduce the concept of the signal to noise ratio (see attached document)

7. Students can go back home and ask their parents or other people at home about other processes for which distributions can be generated as in the case of commuting for students. The teacher can give an example of washing clothes as one area of distribution. The primary purpose is realizing that the amount of time taken for an activity can be reasonably guessed, but there will always be an error associated with one's estimate.

Signal to noise ratio:

Lesson Plan: Week 2 Day 2

Methods of designing questionnaire and the pros and cons associated with each

Classroom Inquiry Process	Resources
Lesson Aims: 1. To help students understand how the different methods of questionnaire design 2. To help students understand the advantages and limitations of different methods 3. To have students gain an appreciation for the difficulty of framing the "perfect" questionnaire **Activity Title: Designing a questionnaire** 1. Context setting (5 minutes) 2. Discussion on Activity, Defining Groups (15 minutes) 3. Noting feedback (to be done by the teacher) on BB/WB (25 minutes) 4. Debrief and reflection by the students as a whole class in around 5-8 points (10 minutes) **Activity Description:** 1. Divide the students into six groups. One set of three groups will be the interviewers, and one set of three groups will be the interviewees. 2. The interviewer set of groups (I1, I2 and I3) has to find out information about the commutes of the interviewee (respondent) set of groups (R1, R2 and R3). Each set of interviewer groups can sit with one set of interviewees facing each other. 3. Members of I1 must speak to members of R1, I2 must speak to members of R2 and so on. The first group can only ask quantitative questions, the second group can only ask qualitative questions, and the third group must use focus group discussions. 4. In the debriefing session, the teacher must ask each of the six groups about the advantages and the disadvantages of their methods. 5. The idea is to have the group realize that each method comes with its own set of advantages and disadvantages, and that no method is perfect. 6. The class should hit upon the realization that asking the right question, or set of questions, is very much a function of the limitations of time, money and therefore convenience. 7. Key takeaways can be added in a shared doc/worksheet accessible to the whole class	

Lesson Plan: Week 2 Day 3

Sampling and Central Limit Theorem

Classroom Inquiry Process	Resources
Lesson aims: ● To give students a sense of how one can reach conclusions about the population by studying a sample ● To give students an idea of what the central limit theorem is all about ● To help students understand the limitations of sampling **Activity title: Central limit theorem and Sampling** 1. Context setting (5 minutes) 2. Discussion on Activity (10 minutes) 3. Understanding the central limit theorem (15 minutes) 4. Limitations and pitfalls of sampling (15 minutes) 5. Reflection (5 minutes) **Activity Description:** 1. With the help of the teacher, calculate the average height of the entire class by recording each person's height in a Google Sheet, and computing the average. 2. Compute the average of the heights of five people drawn at random, and do this exercise five times. Compute the average of the five averages. 3. Ask the students to reflect on what this might mean for finding out the height of the average Delhiite. How many people's heights do we need to measure? 4. Ask them to think about what might happen if we interview only women. What about only men? What if we interview only old people? What if we interview people at Delhi's airports? 5. Use the case studies in the attached document to explain the limitations of sampling, and biases in sampling. 6. Ask the students to think about how this might create problems in the process of market research - what if we end up interviewing only rich teenagers regarding the smartphone? What if we end up interviewing only girls but not boys? How might our research process end up giving us biased results?	Heights in Class Central Limit Theorem **Limitations and biases in sampling**

Week 3: An introduction to qualitative research

Objectives of the week

Important Concepts

1. What is qualitative research, and how is it different from quantitative research?
2. What are the different types of qualitative research? What are its pros and cons?
3. Recapping our three week journey into marketing research

Learning Standards

1. Students get a sense of qualitative research, and its inherent advantages, but also their limitations
2. Students are able to distinguish between quantitative and qualitative research, and begin to develop a sense of what to use when
3. Students are able to get a sense of the entirety of the marketing research process

Summary

The following week focuses upon qualitative research as a process, when it is recommended and the situations in which it is not appropriate. The week also focuses on the different types of qualitative research methods and the right situations for applying them. Students would also be familiarised with the outline of a marketing research process.

Lesson Plan: Week 3 Day 1

Understanding qualitative research

Classroom Inquiry Process	Resources
Lesson Aims: 1. To help students gain an appreciation for qualitative research and its importance 2. To give students a sense of the limitations of qualitative research 3. To give students a sense of the constraints in terms of money and time when it comes to qualitative research **Activity Title: What is qualitative research?** ● Setting the tone/Context Setting/ Introductory Activity (10 mins) ● Discussion on activity and BB/WB work (30 mins) ● Sum-up, Distribution and instructions for take home assignment (10 mins) **Activity Description:** ● By a show of hands, ask people to indicate if they like movies, sports and music. Of the students who say they like movies, ask a couple of students about their favorite movie. ● Ask two of them to rate their favorite movie on a scale of 1 to 10, and ask two other students to explain why they like the movie that they do, ***without*** asking them to rate it**.** ● Repeat this exercise for music and for sportspeople. ● Tabulate all responses on chart paper, and also make a note of the time required in each case. ● Ask all the students who took part in this exercise which question left them more satisfied ● Ask the other students which answers proved to be more informative. ● Ask students to think about which method is likely to provide more information. ● ***Important***: also ask students which method takes more time and effort, and ask them to think about which method is likely to be more efficient when interviewing, say, 100 people. ● Ask students which method is likely to work best in the case of the smartphone for teenagers case study, and why. Students can also be shown the video on what qualitative research is.	Qualitative Research (गुणात्मक शोध)

Lesson Plan: Week 3 Day 2

What is FGD and ethnographic survey?

Classroom Inquiry Process	Resources
Lesson Aims: 1. To introduce students to the point and the advantages of a focus group discussion 2. To introduce students to the idea behind ethnographic survey. 3. To have students reflect on the pros and cons of both approaches **Activity Title: Understanding FGDs** ● Setting the tone/Context Setting/ Introductory Activity (5 mins) ● FGD activity (25 mins) ● Ethnographic survey activity (20 mins) **Activity Description:** 1. Divide the class into groups such that there are at least five and not more than ten students per group, noting that lesser is better 2. Ask each of these groups to talk about which features of the smartphone that is being designed for them are the most important. Which are the must-have features? Which are the nice-to-have features? Which are entirely optional, or not at all desirable? Ask one or two students to take notes, and only intervene if the discussion is going off-track. Otherwise, for about fifteen minutes or so, let the group speak about the topic. 3. At the end of the fifteen minutes, ask the note-takers to summarize the key points that have emerged from the discussion. Make a note of the points that were common to all groups, but also highlight points unique to each group. **Activity 2** 4. For the next activity, randomly assign half the class to be observers, and the other half to take part in an activity. The activity is as follows: a. The non-observer half of the class has to stand in a queue that is arranged on the basis of alphabetical order of first names. This queue must then segment itself into four groups of roughly equal size. Each group has to draw an animal of their choice on chart paper, and they must do so by taking turns drawing one line at a time. Example: Assume that a group chooses to draw a dog. If there are five people in a group, each of the five takes turns in drawing only one line at a time on the same chart paper.	The Art & Science of Ethnographic Marketing Research.docx

Eventually, the picture has to eventually resemble the animal they were trying to draw. b. The observer half has to take notes on how each group progresses. Ask the observer group to reflect on how each successive group gets better by observing the group that went before. 5. At the end of the session, ask both halves of the class to reflect on how much they learnt through the power of observation of actions. Ask how this might be useful to distinguish between what people say in an interview and what they actually do in practice.	

Lesson Plan: Week 3 Day 3

Recap, review and summarization of marketing research

Classroom Inquiry Process	**Resources**
Lesson aims: ● To have students reflect on what they've learnt so far ● To get students to reflect on what marketing research can and cannot do ● To give students a sense of how difficult it is to agree upon what needs to be found out, how it should be found out, and how time and effort estimates can vary widely in marketing research. **Activity title: Scope and limitations of marketing research** ● Setting the tone/Context Setting/ Introductory Activity (5 mins) ● Group activity (20 minutes) ● BB/WB work and feedback ● Sum-up, reflection (10 mins) 1. Divide the class into six groups of equal number of students in each group. Three groups will be representing manufacturing firms of clothes (group 1), hair oil(group 2) and shoes (group 3) respectively. Rest of the three groups are representing marketing departments of the respective firms. 2. Ask each group 1, 2 and 3 to come up with a list of things they would like their marketing department to find out, the method that the manufacturer would like them to use, and the timeline. 3. The remaining groups (4, 5 and 6) are to think of themselves as a marketing department. Each sub-group is to come up with a list of things that they *cannot* do in this project, what methods they would *not* recommend be used, and a sense of the time they think will be required. 4. At the end of the allotted time, compare the two lists. The idea is to give students a sense of how difficult it is to agree upon what needs to be found out, how it should be found out, and how time estimates vary wildly. 5. In the last ten minutes, ask each student to spend some time making a note of five to ten bullet points that would be that particular student's key take-aways from the past three weeks. If possible, share all such notes with all students.	

Week 4: Project

Objectives of the module

Important Concepts

- Students get to analyze a questionnaire and refine it to suit their purpose
- Students get to go out into the “field” and conduct questionnaires
- Students get to begin a tentative analysis of the collected data

Learning Standards

- Students get to analyze a questionnaire and refine it to suit their purpose
- Students get to go out into the “field” and conduct questionnaires
- Students get to begin a tentative analysis of the collected data

Summary

The last week of the module focuses on how to develop a questionnaire, the uses of a pilot survey. The module will focus on unexpected situations that might crop up while collecting data and how one should develop an algorithm for resolving these situations. The module will focus on how a preliminary analysis for a survey helps and discussions around the project.

Lesson Plan: Week 4 Day 1

Understanding the project

Classroom Inquiry Process	Resources
Lesson Aims: To help students refine their questionnaires in order to make them more suitable and relevant for pilot survey deployment **Activity Title: Questionnaire for Pilot Survey** ● Setting the tone/Context Setting/ Introductory Activity (10 mins) ● Discussion on activity and BB/WB work (30 mins) ● Sum-up, reflection and instructions for next phase (10 mins) **Activity Description:** ● Introduce students to the concept of a pilot survey ● Divide the class into two parts, and have the first cohort analyze the draft questionnaire for parents of teenagers who might purchase the smartphone we have been discussing throughout the project. ● Have the second cohort analyze the draft questionnaire for the teenagers themselves. ● Each cohort should reduce the list of questions down to fifteen, and no more (and no less!) ● Once each group does so (10-15 minutes), share the revised draft and the original questionnaire with the other cohort, for them to review and make suggestions, and vice versa (10-15 minutes) ● The class should end by asking each cohort to come up with a "final" survey that they will use to carry out interviews in school on Day 2	What is a Pilot Survey?  Draft Questionnaire for parents  draft questionnaire for the teenagers 

Lesson Plan: Week 4 Day 2

Working on the project

Classroom Inquiry Process	**Resources**
Lesson Aims: To have students actually carry out a pilot survey in school. **Activity Title:** Conducting the questionnaire **Activity Description:** ● Ask the same cohorts from Day 1 to interview five to ten respondents. Each team should interview at least one, preferably two respondents. The parents' interview can be administered to teachers on campus, while the teenagers' interview can be students from a different division, or students in a class that is one year junior/senior. ● See the attached activity sheet for details ● The data collected from the exercise can be entered into a Google Sheet with the help of the teacher ● Formatting the Google Sheet will throw up unexpected challenges, but that's the point of this exercise. When these problems crop up, the teacher should ask the class to reflect on whether the original questionnaire needs to be tweaked, or the method of collecting answers needs to be changed, or both. ● Most importantly, the students should reflect on how the neat theoretical world of questionnaire design is very different from the messy world of actually collecting data	Activity Sheet:

Lesson Plan: Week 4 Day 3

Presenting the final work

Classroom Inquiry Process	Resources
Lesson aims: To have students reflect on the data collected, and begin preliminary analysis **Activity title: Data Analysis** Setting the tone/Context Setting/ Introductory Activity (10 mins) Discussion on activity and BB/WB work (30 mins) Sum-up, reflection and instructions for next phase (10 mins) **Activity Description:** ● Ask each of the teams that collected the data to begin a simple analysis of the entire data collected by the cohort. This analysis could be statistical (quantitative) or qualitative, and preferably both. ● Each team should come up with at least two, and no more than five bullet points as takeaways. ● These bullet points should be put up on the screen/on chart paper for the whole class to take a look at **Activity 2 : Reflective essay** ● At the end of the entire session, ask the students to reflect on the entire four weeks, and write a reflective essay focussing on three points: ○ What did they learn about marketing research (5 bullet points) ○ What are the key challenges in the process of marketing research according to them (5 bullet points) ○ What would they like to see more of/less of if they got the chance to do this project all over again (5 bullet points) ○ This essay is meant to be reflective, and if possible, students should be given at least a couple of days to think about this and then write it.	

3.3 Module Project

As part of the module the students are supposed to work on a group project. The students will be carrying out a pilot survey on determining the viability of a smartphone designed exclusively for teenagers, they will also be conducting interviews and then analyzing it during the last week of the module. After analyzing the data, they will be required to highlight the main findings from the data using either qualitative or quantitative methodology. They will need to reflect on the data they have collected and present their key findings. At the end of the project, students are also required to write a reflective essay focusing on their key learnings about market research, key challenges involved in the process of conducting a market research and the changes they would like to see in the project if they were to do it again.

3.4 Formative Assessment Rubric

Score point	1-2	3-4	5-6	7-8	Evidence
Criterion C: Critical thinking and Decision making	The objective of activity is minimally met. The survey questions articulated are incorrect The analysis of data is not answering the research question	The group follows most of the instructions and most objectives are met. The survey questions articulated are mostly correct, but only some of the questions are answered using the data. Not able to identify all key research findings.	The group follows all instructions in executing the activity and the objectives are met. The survey questions are identified fairly. Most of the questions are answered using the data. The key findings are mostly apt and answers the survey question.	The group follows all instructions in executing the activity and the objectives are met. The data from the survey is analysed correctly. All the key research findings are identified and it answers the survey questions.	In an exemplar presentation, all the following information will be present: 1.Identification of the most significant survey questions and the justification for their selection (What?). 2. Research findings- (This is the main part - from the analysed data select 3 main findings for presentation. All data need not be presented) 3. Conclusion- respond to survey questions. 4. The findings should answer the research question.Consistently presents their thoughts and ideas such that the audience is enlivened and impacted. The ideas expressed seamlessly connect to each other and there is a flow in the communication. 5.The data should be presented in the form of infographics, tables, and graphs for effective communication.
Criterion D: Presentation and Communication	Students have not been able to present the data gathered through pilot survey in a comprehensive manner No use of infographics or tables.	Students have been able to present data in a fair manner . Minimal use of infographics	Students have been able to present the data comprehensively . Some infographics, graphs and tables are included.	The data has been present accurately and in an explicit manner Graphs, tables and other infographics are used for efficient communication.	

3.5 Teacher Professional Development Guide

Marketing Research

The Teacher Professional Development Guide is designed to assist with the delivery of professional development sessions on the module: 'Marketing Research'.

Objectives

Objectives of the TPD Training of the module -

- To introduce teachers to the module and develop an understanding of the concepts.
- To explain the module structure, assessment and evaluation of the module.
- To develop a thorough understanding of what is marketing research and the various stages involved in the development of the planning, the execution and the processes of a typical marketing research project.

SCHEDULE OF THE TRAINING

The training would be conducted online through 3 sessions stretched across 3 days. Each session would be of three hours duration.

OVERVIEW OF THE TRAINING

Session	Themes	Duration (hours)
Session 1	Understanding of Marketing Research, its importance in real world, key components of a marketing research process, target group identification, product analysis, target group identification, questionnaire design, choice of method of collection of data, limitations, the collation and cleaning of data, and starting the data analysis	**3 hours**
Session 2	Introduction to Statistics, its importance, relevance to the field of marketing research. Key tenet of statistical research; questionnaire design; introduction to the process of sampling and the central limit theorem	**3 hours**
Session 3	Differences between quantitative and qualitative research, focus group discussion, ethnographic survey in marketing research	**3 hours**

Session 1

1. Introduction to the whole module (30 minutes)
    - The session starts with a broad overview of the module. Teachers are run through the structure of the module and the important concepts that are to be covered.
2. Brainstorming of what teachers think marketing research is, and its importance to the real world (40 minutes)
    - A discussion based on what marketing is, and how marketing research fits in the domain of marketing
    - Through discussion introduce to the teachers the centrality of marketing, and within marketing, the centrality of marketing research
3. A discussion on what a target group is, and nuances related to target group identification (30 minutes)

    - To help teachers realize that marketing research begins with, and is largely defined by, getting the target group identification exercise to go as perfectly as possible. That being said, target group opinions are important without being irreplaceable.

    - To also help teachers understand that we should begin to think about how to analyze the potential responses we will get from the questionnaire right away.
4. A discussion on what the key components of a marketing research process are (1 hour):

    - A discussion on how to think about the delineation of the different components of a marketing research process, including but not limited to product analysis, target group identification, questionnaire design, choice of method of collection of data, any limitations that can be anticipated, the collation and cleaning of data and the process of starting upon data analysis

    - To help the participants realize that this will help make the designers of the exercise be more aware of the potential limitations of such an exercise, and how to think about potential remedies for the same

Session 2

1. Introduction to the field of statistics (30 minutes)

    - To introduce to the teachers the key concept of statistics, and its importance and relevance to the field of marketing research

2. An introduction to the key tenet of statistical research (45 minutes):
   - To introduce the idea that any process, in any department in any organization, that generates data is in a sense amenable to statistical analysis
   - To introduce to teachers the idea of the two concepts of signal and noise, and how these can be understood in the context of non-statistical examples as well.
   - To help participants understand that the signal and the noise taken together are a measure of central tendency and central dispersion, and that these concepts help us extract meaningful, relevant information from the relevant datasets
3. An introduction to the idea of questionnaire design (1 hour):
   - To help the participants understand that there are different types of questionnaire design that are possible, and that each of them come with their own advantages and disadvantages.
   - To help the participants understand that there is no such thing as the "perfect" questionnaire, but rather that each method has its own advantages and disadvantages, and choosing the one most suitable for our purposes is key, not trying to design one without flaws.
   - To help participants realize that the choice of questionnaire design is guided by constraints such as budget, time-frame, geographical location
4. An introduction to the process of sampling and the central limit theorem (30 minutes)
   - To give the participants a sense of of conclusions about the population can be surmised by working with the sample
   - To help participants understand the central limit theorem, its relevance, its applicability to sampling, and how it helps us reach a conclusion about the population by studying a limited sample
   - To help participants become aware of the limitation of sampling, and that elimination of sampling bias is a requirement, but also a significant challenge.

Session 3

1. The key differences between quantitative and qualitative research (30 minutes):
   - Through brainstorming, explain to students and have them discover for themselves the differences between qualitative and quantitative research, and explain the inherent advantages and disadvantages of both approaches.
   - Qualitative research is important, oftentimes more informative than quantitative research, but is also more expensive, time consuming and complicated

2. By asking teachers to participate in a group activity, help them realize that a focus group discussion, an ethnographic survey or a similar technique is a richer but more complicated technique (30 minutes)
3. Give the participants time to reflect on all of what has been discussed across the three sessions, and to help them think about the hand-on project that will come up next (20 minutes)
4. To ask participants to eliminate weaker questions from a laundry list of questions about a particular topic, and to have participants realize how difficult it is to eliminate questions while designing a questionnaire. (30 minutes)
5. To ask participants to reflect on how an interview session might be conducted in schools to give the students a taste of actually collecting data, and realize the difficulties associated with collecting, storing and analyzing data (20 minutes)
6. To wrap up the training session, have the participants reflect on the learning process and think about what modifications could be made to iterate upon and improve the process.

3.6 Student Workbook

Introduction

Ⅰ.Ⅰ World of Work

One of the components of the vision for Schools of Specialized Excellence (SoSE) is increasing exposure of students to careers and the world of work. However, career domains today are not straightforward and are becoming exceedingly integrated. Students require a multidimensional and interdisciplinary approach. Separately, the best education globally offers students abundant opportunities for project-based learning, development of higher-order thinking skills and development of soft skills.

The World of Work (WOW) course aims to address all the above requirements during the 9th and 10th grades for the SoSE schools of the Humanities stream. The course is designed as a series of 1 month (16 classroom hours) 'taster' modules that explore different skills and careers in the humanities and social sciences. The modules are designed as a skill module, paired with career modules. Skill modules address a workplace skill that has wide applicability across a range of careers. Each skill module is followed by 2 career modules which are strongly associated with the skill and which develop further on the skill. For example, the Transmedia Storytelling module is followed by Journalism and Content Creation as career modules. Each module is a 16 hour exploration and is delivered via discussions, expert guest speakers ('masterclasses'), digital content, field visits, projects and assignments. These modules are critical in enabling SoSE students to make informed choices and prepare in advance to succeed in their chosen career pathways.

Students learn in various ways in the World of Work course. In developing the modules a priority has been to provide interesting and vivid teaching material including videos and presentations. Classroom discussions are an important part of the session and students learn from each other as well as develop their confidence and spoken communication. Expert guest speakers and field visits offer rare and privileged opportunities to experience a profession. Assignments and project work take them out of the classroom to engage with the environment they live in. These also demand developing time management, creativity, working collaboratively and good presentation skills. All this nurtures students for all round development and at the same time sets them up for success in their chosen area of specialization.

The role of the teacher in the World of Work is challenging and rewarding. The teacher is not an expert in the subject material, even though there is extensive teacher training. Therefore they act more as facilitators for the students' learning. They do need to stretch their boundaries to familiarise themselves with all the skills and careers in the course. Group and individual projects are an integral part of the course and facilitating these and managing the ambiguity inherent in evaluation of projects is a new skill to be learnt. Classroom discussions are a vital part of the course. The teacher must adapt to all these new formats of running a class. They have to give up their tried-and-tested methods of teaching and try on new ones – a humbling experience. The rewards for the teacher are in the tangible growth and development of the students in areas like confidence, presentation and communication. The teacher will also experience significant personal and professional growth in the process.

Assessment is an important part of the World of Work. The course is meant to be rigorous and not limited to the level of awareness-raising or exposure. The course delivers specific skills and concepts that the students are expected to understand, internalize and apply. The assessment framework has components of

“Knowledge and Understanding”, “Inquiry and Exploration”, “Critical Thinking and Decision Making” and “Presentation and Communication”. Assessment of each module of WOW will draw from the above set of components and be tailored to the module. Internal assessment of the modules will be usually through the module project, while the summative assessment could be through a variety of formats including mini-project or different types of sit-down exams.

Ⅰ.Ⅰ Ⅰ Overview of the curriculum

The World of Work course is designed as a series of 1 month (16 classroom hours) ‘taster’ modules that explore different skills and careers in the humanities and social sciences. The modules are designed as a skill module that is paired with one or more career modules. Skill modules address a workplace skill that has wide applicability across a range of careers. Each skill module is followed by 2 career modules which are strongly associated with the skill and which develop further on the skill. For example, the Transmedia Storytelling module is followed by Journalism and Content Creation as career modules.

The following table gives the full list of modules that will run in the World of Work curriculum.

Skill Area	Career Pathway 1	Career Pathway 2
Transmedia Storytelling	Journalism	Content Writer
Mapping and Visualization	Geographic Information System (GIS) Analyst	Urban Planner
Working with People and Communities	Social Work	
Enabling Learning	Teaching	
Justice and Constitution	Lawyering	Public Policy
Research and Critical Thinking	Academic Research	Marketing Research

The first 3 rows show the modules that run in 9th Grade and the next three rows the modules that run in 10th grade.

Below shows the classroom time allocation for the modules and the number of instructional days they will run over.

S.No.	Modules	Suggested time allocation/Instructional days
Grade 9		
	Unit 1: Transmedia Storytelling	16 hours/12 days
	Unit 2: Journalism	16 hours/12 days
	Unit 3: Content Creation	16 hours/12 days
	Unit 4: Mapping & Visual Representation	16 hours/12 days
	Unit 5: Cartographer / Geographer	16 hours/12 days
	Unit 6: Urban Planner	16 hours/12 days
	Unit 7: Working with People & Community	12 hours/ 9 days
	Unit 8: Social Work	12 hours/9 days
Grade 10		
	Unit 9: Enabling Learning	12 hours/ 9 days
	Unit 10: Teaching	12 hours/ 9 days
	Unit 11: Justice and Constitutional Values	16 hours/12 days
	Unit 12: Lawyering	16 hours/12 days
	Unit 13: Policy Advocacy/Public Administration	16 hours/12 days
	Unit 14: Research and Critical Thinking	16 hours /12 days
	Unit 15: Academic Research: Historian/Sociologist/Economist	16 hours/12 days
	Unit 16: User Research / Market Research	16 hours /12 days

Note the exceptions to the standard format: In two skill areas, “Working with People and Communities” and “Enabling Learning”, there is a single career module associated with the skill module. In these two cases, the skill module runs for three weeks and the career module for three weeks. In these cases, the skill and career modules are tightly integrated rather than running as individual modules.

Ⅰ.Ⅲ Objectives of the curriculum

- To give the students a very wide area of exploration that leaves them with an understanding of the world of work at large. They are also shown interconnections between modules and clusters and realize the interdisciplinarity of the world of work.
- To develop a range of skills (the skills of the skill modules) that will continue to be useful to students in their future irrespective of the specific career path they choose.

- To give the students sufficient information and engagement with skills, careers and workplaces so that they can start a deeper process of focussed exploration in skills and professions as designed for the 11th & 12th grades. In a few cases, the students will have gained enough clarity from the course that they will make a decision on their own about their career goal and independently plan and work towards reaching it.
- To develop their ability to do independent work and thinking, to deliver projects, and work collaboratively.
- To develop skills of critical thinking and creativity.
- To enhance students' presentation skills in different modes and media.

Ⅰ.Ⅳ Curriculum Framework

The course consists of a sequence of skill and career modules. These modules are grouped into related clusters. A cluster will contain a skill module and 2 (or 1) related career modules.

A skill module introduces the students to a particular skill or skill area that is widely required for many careers. In this course the students are introduced to 5 skill areas in the Social Sciences and Humanities which gives them a good range of knowledge. By practicing these skills, students develop themselves with a wide range of skills. Simultaneously they have the opportunity to find out if they have an aptitude for or interest in that skill. Discovering such interest and aptitude can be an enormous boon to the student - if they find a niche they are happy with, they start exploring and developing on their own and the future unfolds with ease and fulfillment. While it is not possible to develop a skill in-depth in the time available, the engagement with the skill does result in concrete learning outcomes.

Career Modules explore a career that is strongly connected to the skill in that cluster. Career modules explore the career from multiple perspectives:

Skills: The career module builds on the work done in the skill module to develop the skill further in the context of the particular career. For example the Journalism career module will take storytelling to the context of Journalism.

Career Roadmap: The career module will talk about a way to join that career ie. what subjects to choose for 11th & 12th grades, what degree courses are appropriate, what are the premier colleges, what communities of practice exist, relevant skills to develop etc.

'A Day in the Life': The career module also gives students an idea of what work in that career looks like. Practitioner interactions are a very effective way to do this.

Is this for me?': The various interactions and experiences of the career module helps the student build some evidence for whether this is the direction they want to take. The intention is not however that the student should decide by the end of 10th grade.

Career modules will have sub-areas or may cover a career *area*. For example, Content Creation is a career area which covers careers in Graphic Design, Content Writing, Film-making and more. Journalism is considered a career, but there are a wide range of sub-options by media and types of writing eg. news reporting, news analysis, photography, video journalism etc.

Ⅰ.Ⅴ About this handbook

This Handbook is written to provide the students with all information, support, and guidance they need as they work through World of Work modules. It guides the students through the “Research and Critical Thinking” skill module, “Academic Research” and “Marketing Research” career modules under the Research and Critical Thinking Cluster. It contains the handouts and worksheets that the students will use while going through the modules. It also contains the student planner for each module which will help them plan, organize and keep track of their work.

Table of Contents

Student Planner

Session	Topic	Objectives and Description
Week 1		
Session 1	**The art and science of marketing**	1. To familiarise students with the concept of marketing and its relevance in today's world. 2. To understand that working of a firm is essentially marketing and identify personal instances of marketing in our own lives. *In this session, we will be focusing on understanding the basic concepts of marketing and its importance in the world today and to see how a marketing firm functions.*
Session 2	**Data, Facts, Opinions and Decision-Making in Marketing**	1. To understand what a target group is and the need to identify the right targets. 2. To understand that the opinion of target group is not all that matters in marketing research 3. To analyse the gathered data. *In this session, we will be focusing on what is the right target group for any marketing research process and what are the other key characteristics of marketing research*
Session 3	**The key components of marketing research**	1. To understand key components of a market research and the importance of sequencing of the components 2. To understand the limitations of such a process *In this session, we will be focusing upon understanding the key components of marketing research and what are the constraints such as budgetary that one faces while undertaking the process*

Week 2		
Session 4	**Statistics and Marketing**	1. To develop an understanding of the basic concept of statistics. 2. To establish the relation between statistics and marketing 3. To develop and understanding of the extent to which statistics can help in marketing research and limitations it encompasses *In this session, we will look at how statistics and marketing are interlinked, focusing on how statistics aid the process of marketing research and the limitations it has.*
Session 5	**The Art of Asking the Right Questions**	1. To understand different methods of designing a questionnaire. 2. To develop a sense of limitation and advantages of each of the methods. 3. Develop an appreciation for the idea of curating a perfect questionnaire. policy implementation and review *In this session, we will focus upon what are the different ways of designing a questionnaire and the limitations which each of the methods has , we will also look at the challenges faced in designing a perfect questionnaire.*
Session 6	**Understanding Sampling**	1. To understand how conclusions can be drawn about a population by studying a sample 2. To have a basic understanding of central limit theorem 3. To understand limitations of sampling *In this session, we will focus upon the basic concept of sampling and its limitations. The session will also ponder upon the concept of central limit theorem in marketing research.*
Week 3		

Session 7	**Importance of data in policy making**	1. Students will gain an appreciation for qualitative research and its importance. 2. Students will be able to understand the limitations of qualitative research 3. Students will develop a sense of constraints in terms of time and money when it comes to qualitative research *In this session, we will focus upon understanding how qualitative research is done in the space of marketing. Students will also take cognizance of the various limitations it entails in terms of money and time.*
Session 8	**What are FGD's and what is an ethnographic survey?**	1. Students will be introduced to the basic concept of FGD and its advantages. 2. Students to be introduced to the idea behind ethnographic survey *In this session, we will focus upon exploring what is FGDs and ethnographic survey in marketing research. The students will also understand how observation is important while doing an ethnographic survey.*
Session 9	**Recap, review and summarization**	1. Students to recap what they've done so far 2. Students will reflect on what marketing research can or cannot do. *In this session, we will be recalling the concepts they've learned so far in the module. Students will also look at things that can be done through marketing research and what are the objectives it cannot achieve.*
Week 4		
Session 10	**Understanding the project**	1. Students will refine their questionnaire to make them more suitable for pilot survey *In this session, we will be familiarised with the project they have to undertake and the questionnaire which they need to refine.*

Session 11	**Working on the project**	1. Students will carry out a pilot survey in school *In this session, we will be carrying out a pilot survey in the school using the questionnaire developed in the previous class.*
Session 12	**Presenting the final work**	1. Students will reflect on the data collected, and begin preliminary analysis. *In this session, we will be focusing upon doing a simple analysis of the data collected in either qualitative or quantitative manner preferably both. The session will end with a reflective essay on the entire four weeks of the module.*

Introduction to Marketing Research

Have you seen advertisement boards around you or emails and calls asking you to try a newly launched product or buy an insurance cover from them? Well, no matter how annoying we find these, all of these are part of marketing campaigns for a brand.

Marketing is an integral part of business, and with the cutthroat competition that exists in the business world, marketing has the power to make or break a venture.

Marketing involves a slew of steps. Through effective campaigns, the market is studied initially. From the surveys, the required services or products are presented to the consumers and strategies are prepared to increase the consumer base and boost sales to generate more revenues and leads.

What is marketing?

Marketing definition includes activities undertaken by a business establishment or an individual to promote their services and products. Marketing includes promotion, advertisement and selling products and services to the consumers.

Marketing is the key component of any venture and includes aspects like writing product descriptions, designing website pages, improving customer services, establishing business & market segments and conducting market research. Marketing involves strategies that aid in the growth of a business venture.

What is Marketing Research?

According to the American Marketing Association, marketing research is the systematic gathering, recording and analyzing of data about problems relating to the marketing of goods and services. Marketing research is not a perfect science. It deals with people and their constantly changing feelings and behaviors, which are influenced by countless subjective factors. To conduct marketing research, you must gather facts and opinions in an orderly, objective way to find out what people want to buy, not just what you want to sell them. It is impossible to sell products or services that customers do not want. Learning what customers want, and how to present it attractively, drives the need for marketing research. Small business has an edge over larger concerns in this regard. Large businesses must hire experts to study the mass market, while small-scale entrepreneurs are close to their customers and can learn much more quickly about their buying habits. Small business owners have a sense of their customers' needs from years of experience, but this informal information may not be timely or relevant to the current market.

Marketing research focuses and organizes marketing information. It ensures that such information is timely and permits entrepreneurs to:

- Reduce business risks
- Spot current and upcoming problems in the current market
- Identify sales opportunities
- Develop plans of action.

Without being aware of it, most business owners do market research every day. Analyzing returned items, asking former customers why they've switched, and looking at competitor's prices are all examples of such research. Formal marketing research simply makes this familiar process orderly. It provides a framework to organize market information.

(Source: https://www.schoolcraft.edu/pdfs/bdc/2005-03.pdf)

The term marketing research is also more often confused with market research, many times the terms are used interchangeably. However, it needs to be kept in mind that even though both the processes are crucial to marketing, they come with their own set of inherent differences. The distinction between market research and marketing research is easily discernible on the following grounds:

1. Market research is the study of customers and the market, whereas marketing research is the study of all aspects of marketing.
2. Market research is reliant, whereas marketing research is autonomous.
3. Marketing research has a much broader reach since it involves doing product research and customer preferences, whereas market research just involves gathering market information.
4. Market research investigates the market success of a product or service, whereas marketing research collects data for marketing intelligence activities and decision-making.
5. Market research is focused on answering particular questions, whereas marketing research is more general and utilized to solve various marketing challenges.

(***Source:*** *https://www.voxco.com/blog/market-research-vs-marketing-research)*

Understanding Marketing Research

Look at the activity below to develop an understanding of marketing research.

A Smartphone for 15-18 Year Olds

Read the following paragraph:

A major mobile phone manufacturing company is considering launching a new phone designed exclusively for 15-18 year old's. You, the latest employee in the marketing department, are tasked with deciding what features such a phone should have.

The owner of the company, a seventy-year old, would like the phone to have a physical keyboard, because that is his own favourite feature on the phone. (Option A)

He says he has also spoken to the parents of 15-18 year old's he knows, and they have told him that they would like such a phone to always share its location with them, so that they can always know where their children are. (Option B)

He asks you what features you (a 15-18 year old) would like the phone to have, and you say that it should be a good gaming device. (Option C)

Now, divide yourselves in groups and discuss and reflect upon the questions below:

1. Who is best placed to decide which features should be included in this phone? Why?
2. Who is likely to be the decision maker when it comes to the purchase of this phone? Grand-parents, parents or 15-18 year old's? Whatever your answer, how do you know?
3. Will price be an important factor? Whatever your answer, how do you know?
4. If price ***will*** be an important factor, which features can we afford to cut from this phone? Whatever your answer, how do you know?
5. [Note to the teacher]: the fourth question is likely to elicit many different opinions. Ask the class how they can decide which is the most important, and why.

The Target Group

- A *target group* is something that is in the day-to-day of anyone who proposes marketing and communication actions from a strategic point of view. A real basic among the terms we must handle.

What is a target group?

- Basically, it is about the segmentation that we have to do to limit the audience to which we will direct our campaigns. Different criteria can be used, such as sociodemographic, geographical or personal interests.

  The important thing is to have the most accurate approximation of who the people receiving the impact of our marketing and advertising actions are.

Why are target groups important?

- Keep in mind that each *target group* needs a different approach: they do not have the same interests nor are stimulated the same way by one communication tone or another. It will always depend very much on some key factors like:
- Brand positioning: do you sell exclusivity and luxury? Is your differential advantage found in *eco-friendly* products? Are you the first price in your niche? Only by answering these questions will you start defining your target audience.
- Markets you are targeting: consumers are different in different parts of the world. The cultural footprint makes them have even opposite shopping habits.
- Age range: from references to the communication tone, everything varies if we go to Baby Boomers, Generation X, Millennials or Generation Z.

(Source: https://www.oleoshop.com/en/blog/what-is-a-target-group)

Key Components of Marketing Research Process

At the heart of every marketing research process lies five components i.e. scope, sampling, questionnaire design, data collection, data cleaning and analysis. Scope represents the areas covered or the aspects studied under marketing research. In other words, it implies where or on which areas marketing research can be applied. Sampling refers to the target group towards which the product is based, it is about getting opinions from a number of people, chosen from a specific group, in order to find out about the whole group. The third component is questionnaire design which comprises the tool that will be used for data collection for the research. The questionnaire is a structured technique for collecting primary data in a marketing survey. It is a series of written or verbal questions for which the respondent provides answers. A well-designed questionnaire motivates the respondent to provide complete and accurate information. From the data that has been collected not every bit of it would be useful for drawing conclusions or making decisions, therefore the fourth component of data cleaning is the step in which relevant data is separated from the irrelevant or redundant data. Subsequently in the last step of data analysis, key decisions regarding the product can be undertaken from the conclusions drawn.

Look at the activity given below to develop a sense of key components of the marketing research process. You are required to divide yourselves into five teams with each group representing one key component.

Key components: Scope | Sampling | Questionnaire Design | Data Collection | Data Cleaning and Analysis

Team 1, Scope: This team gets to decide what the project will seek to find out, and what it will stay away from. Should comparisons be made with other smartphones as a part of this (the smartphone for 15-18 year olds) project? What about comparisons with laptops and tablets? With "dumb" phones? How much time should we allocate for this project? Three weeks, or six months or two years? How many people should work on this project?

Team 2, Sampling: Whom should we be asking? Why? How many people do we need to ask? Everybody? Everybody in a locality, in a city, in a state or the entire country? Should we ask only young people, or only old people? Only rich people or only (relatively) poorer people? Educated or uneducated? More men or more women? Again, the emphasis is on figuring out the important questions, not their exact answers.

Team 3, Questionnaire Design: Should we even design a questionnaire? Or just ask people to talk? If we are to design a questionnaire, how many sections and how many questions? Should we ask "personal" questions? What about questions about education? Income? Current phone ownership? Patterns of usage on current phones? Ownership of past phones? Features they will look for in new phones? "Ideal" features?

Team 4, Data Collection: How should we target data collection? What day of the week? Which month of the year? What time of day? How many people in a team and how many teams? How much time should we budget? What if things go wrong? How to do data checks? How should we audit collected data? Language

barriers? Method of recording answers?

Team 5, Data Cleaning and Analysis: How much bad data should we anticipate? What should our definition of bad data be? What questions should we definitely get answers to? What are nice-to-have answers? What questions can we skip analysing? What should we be telling the questionnaire design and data collection team?

Statistics in Marketing Research

Statistics are applied in marketing to identify market trends, and to measure and evaluate the potential and success of marketing programs. The secret to successful marketing is to identify the target market accurately and to use effective marketing communications channels and tactics to reach it. Statistics can help the marketer achieve both of those goals as well as evaluate the success of the marketing effort and provide data on which to base changes to the marketing program.

Data Source

1. The most basic use of statistics in marketing is as a source of data. Statistics provide demographic information such as the number of potential customers in a geographical area, their ages, income levels and consumer preferences. Used as part of competitor analysis, statistics can identify the major competitors, their market share and trends in the longevity of their products. Industry sector data helps marketers understand the trends governing supply and demand of the product category and fluctuations in its popularity.

Read below to understand what statistical analysis in marketing research means:

An Explainer on Commute Times, Outliers and Their Identification

Imagine that you are part of a group of students who are studying how long it takes for different students to commute to school. You collect data on the commute times of all the students in the group and calculate the mean (average) and standard deviation.

The mean is the sum of all the data points divided by the number of data points. For example, if the commute times of the students in your group are 10 minutes, 15 minutes, 20 minutes, 25 minutes, and 30 minutes, the mean commute time is 20 minutes (10 + 15 + 20 + 25 + 30 = 100 / 5 = 20).

The standard deviation is a measure of how spread out the data points are from the mean. For example, if the standard deviation of the commute times in your group is 5 minutes, it means that most of the students' commute times are within 5 minutes of the mean.

Now, let's say that one student in the group has a commute time of 45 minutes. This student's commute time is significantly longer than the mean and falls outside of the range of most of the other students' commute times. We might consider this student's commute time to be an outlier.

By calculating the mean and standard deviation, we can identify outliers in our data and investigate why they are different from the rest of the group. In this example, we might want to find out if there is something unique about the student with the longer commute time, such as living farther from school or taking a different mode of transportation.

To understand the different statistical analysis techniques used in the process of marketing research refer to the QR code given below:

What is Signal to Noise Ratio?

Let us read below to find out about Signal To Noise Ratio!

The signal to noise ratio (SNR) is a measure of how much useful information, or "signal," is present in a dataset compared to the amount of "noise" or irrelevant information. In the context of marketing research, the signal refers to the data that is relevant and meaningful for understanding consumer behaviour and making informed business decisions, while the noise refers to data that is unrelated or misleading.

For example, imagine that you are conducting a survey to gather information about consumer preferences for a new product. If the survey questions are carefully designed and the responses are representative of the target market, the data you collect will be a strong signal that can help you understand consumer needs and preferences. However, if the survey questions are poorly written or the responses are biased or unrelated to the product, the data you collect will be noise that will not provide meaningful insights.

In general, it is important to aim for a high signal to noise ratio in marketing research because it allows you to make more accurate and reliable conclusions about consumer behavior. A high SNR means that the data you collect is more likely to be representative of the target market and relevant to your research goals, while a low SNR means that the data may be misleading or irrelevant.

Different Methods of Conducting Marketing Research

Market research techniques

Quantitative research includes surveys and questionnaires. Qualitative research involves in-depth questioning of small groups of respondents. If you're doing your own research on a limited budget, the best approach is to talk to existing customers and use simple surveys to gather information. More sophisticated methods, such as focus groups, are best left to the professionals.

Market research questionnaires are a well-known way of generating market information. Questionnaires are typically used to answer simple queries - for example, how many potential customers there are in the local area, whether they would find such a product or service useful and the sort of price they would be willing to pay for it. The key is to ask the right people the right questions, and that you are asking enough people to get meaningful results.

Asking friends and relatives what they think about your ideas is not market research. You need to approach a significant sample of people who match the profile of your target audience. Unless people care about the product or service, you'll find that response rates are generally low. An incentive can help lift those rates.

Questionnaires are effective in getting feedback from existing customers. Respondents are usually happy to help as they can see a direct benefit. Remember to show you have acted on their feedback.

A market research survey doesn't always rely on questions. You might research a retail location by observing pedestrian traffic. You may also want to carry out an experiment as part of your market research, such as a blind tasting of different products. Other observational techniques include watching people as they shop (accompanied shopping) as well as anonymous calls or visits to shops, restaurants or offices (mystery shopping).

Another alternative is to use focus groups for market research. Rather than using large numbers of questionnaires, a focus group works with a small number of participants for in-depth research. For example, you might use a professional market researcher to investigate how customers feel about your brand. Participants must be carefully selected to ensure they are a representative sample.

The internet offers further market research opportunities. Online market research can be cheaper and faster than traditional surveys. However, while response levels are high, you have little control over the types of people that respond so it can be hard to achieve a representative sample.

(Source:https://www.marketingdonut.co.uk/market-research/questionnaires-surveys-and-focus-groups/questionnaires-surveys-and-focus-groups-overview)

However each of these methods also come with their own set of limitations based on time, money and convenience. Which method will be suitable for a particular kind of product is subject to these limitations.

Sampling Bias

In the previous section we've learned about what sampling is in the process of marketing research. Now, we will look at what we understand by the term bias in sampling.

Bias in sampling refers to the idea that the results of a study or survey may not accurately represent the entire population because the sample group was not chosen in a random or unbiased way.

For example, let's say that a researcher wants to survey high school students to find out their favourite type of music. If the researcher only surveys students at one particular high school, the results of the survey may not accurately represent the favourite types of music for all high school students. This is because the sample group (students at one high school) is not representative of the entire population (all high school students).

Another example of bias in sampling is if a researcher only surveys people who use social media, and ignores people who do not use social media. The results of this survey would not accurately represent the entire population because the sample group is missing a significant portion of people (those who do not use social media).

One real-life example of bias in sampling is the 1948 presidential election in the United States between Harry Truman and Thomas Dewey. Several polls were conducted before the election that predicted that Dewey would win. However, Truman ended up winning the election, leading many to question the accuracy of the polls.

It was later discovered that the polls were biased because they only surveyed people who owned landline phones, which at the time were more likely to be owned by wealthier and more educated people who were more likely to support Dewey. The polls did not survey people who only had mobile phones or no phones at all, who were more likely to be poorer and less educated and therefore more likely to support Truman.

As a result, the poll results were not representative of the entire population and did not accurately predict the outcome of the election. This example shows how bias in sampling can lead to incorrect conclusions and predictions.

A study was conducted to determine the average weight of college students. The researchers only surveyed students at a small, private college and found that the average weight was 75 kilos. Based on these results, the researchers concluded that the average weight of all college students was 75 kilos.

However, this conclusion is biased because the sample group (students at one small, private college) is not representative of the entire population (all college students). It is likely that students at other colleges, or students at the same college who were not surveyed, may have different average weights. As a result, the conclusion that the average weight of all college students is 75 kilos is not accurate.

It is important to be aware of biases in sampling because they can lead to incorrect conclusions about a population. In order to get accurate results, it is important to try to choose a sample group that is representative of the entire population. This can be done through random sampling, where every member of the population has an equal chance of being selected for the sample group.

In conclusion, biases in sampling can lead to inaccurate results and it is important to try to choose a sample group that is representative of the entire population in order to get accurate results.

Central Limit Theorem

It is a statistical theory which states that when the large sample size has a finite variance, the samples will be normally distributed and the mean of samples will be approximately equal to the mean of the whole population.

In other words, the central limit theorem states that for any population with mean and standard deviation, the distribution of the sample mean for sample size N has mean μ and standard deviation $\sigma / \sqrt{n}$.

As the sample size gets bigger and bigger, the mean of the sample will get closer to the actual population mean. If the sample size is small, the actual distribution of the data may or may not be normal, but as the sample size gets bigger, it can be approximated by a normal distribution. This statistical theory is useful in simplifying analysis while dealing with stock indexes and many more.

The CLT can be applied to almost all types of probability distributions. But there are some exceptions. For example, if the population has a finite variance. Also, this theorem applies to independent, identically distributed variables. It can also be used to answer the question of how big a sample you want. Remember that as the sample size grows, the standard deviation of the sample average falls because it is the population standard deviation divided by the square root of the sample size. This theorem is an important topic in statistics. In many real-time applications, a certain random variable of interest is a sum of a large number of independent random variables. In these situations, we can use the CLT to justify using the normal distribution.

(Source: https://byjus.com/jee/central-limit-theorem)

Ethnographic Marketing Research

Let us read the article given below to understand the meaning of Ethnographic Marketing Research:

The Art & Science of Ethnographic Marketing Research

-Tasha Estey

"There is no better way to get closer to the consumer… than by using ethnography as a bridge." ~John F. Sherry Jr. (1995, 15)

Ethnography is not new to marketing research. Today, most companies who invest in marketing research have had some experience with 'ethnography' and many have fully incorporated the approach into their ongoing research programs. In this era of big data, it is as important as ever to understand the value of ethnography for companies in the product and service business. This article considers the art and science of ethnographic marketing research: the 'science' includes the specific set of methods that are utilized and their execution and the 'art' includes how a particular suite of ethnographic methods is selected as part of a customized research design and how the data, once collected, are interpreted through the lens of culture and society.

What is ethnographic marketing research?

Anthropology is the study of people and culture. An anthropologist's job is to make sense of and systematically describe a single, contemporary culture; ethnography is the methodology and perspective they use including *participant-observation*, *open-ended interviews*, *objectology*, and writing *detailed field notes*. An anthropologist tries to understand another culture from the point of view of members of that culture. Translated to the marketing research industry, an ethnographic approach can deal with and make sense of the complexity and segmentation of contemporary life as it plays out in patterns of consumption and consumption activities.

In a nutshell, ethnographic marketing research is a vehicle for gaining insight into what, how, and why people consume and the sociality of consumer behaviour. It allows marketing researchers to observe the consumer demonstrating a relationship with a brand in cultural context.

In ethnographic marketing research, the ultimate quest is for insights into the sociality of consumer behaviour — things like the hierarchy of cultural values consumers subscribe to, how the brand acts as a marker of social relationships, consumption as an expression of consumer taste and style, and how brands help consumers construct concepts of themselves and of the cultural world they live in. Often, this interpretive process feels like a bit of a fishing expedition because the researcher isn't always sure what they will catch in the net of data and there is an inherent openness to unanticipated needles of insight in the proverbial haystack.

Can anyone do ethnographic marketing research?

You don't have to be an anthropologist to be good at ethnographic marketing research, but it helps. In theory, anyone can systematically execute a specific set of ethnographic methods and this approach can provide opportunities for advertising agencies and clients working with research suppliers to get directly involved in data collection.

What is 'the field' and how long do you spend there?

'The field' in ethnographic marketing research terms is anywhere brand decisions are made and/or consumer behaviour occurs, not a focus group facility, which is a quasi-controlled environment. The field can be almost anywhere consumers are: home, car dealership, shopping mall, nightclub, vehicle, campground, movie theatre, workplace, etc.

Traditional ethnographic 'fieldwork' is intense, long-term research conducted among a community of people. However, marketing researchers rarely have more than a few weeks or a couple of months from brief to debrief. Effective research *can* be done within a shorter period of time in the field if the researcher is already familiar with the culture or community being studied (Bernard 2002, 329). Depending on the objectives, ethnographic marketing research designs will propose spending three-plus hours, half days, whole days, or longer with participants. That's because it takes some time to develop rapport with participants and even longer to fade into the background enough that naturalistic consumer behaviour will emerge. If the research objective is to understand daily usage behaviours, for example, spending just two hours observing is not going to provide the answers.

How do you find research participants and how many do you need?

Participants can be found through *traditional recruiting methods* similar to how focus group respondents are found. *Snowball sampling* is another common ethnographic recruiting method that involves one participant leading a researcher to others from his or her social network who may share similar brand or category usage. Since rapport has already been developed, more can be asked of participants (e.g. attending a dinner party, spending a weekend observing media consumption in the home, probing deeply about their affluent lifestyle, etc.). Participants in ethnographic marketing research are paid more for their time than focus group respondents because the 'ask' is more intrusive (i.e. they have to be okay with researchers looking through the cupboards in their home, hanging out with them during Sunday football on TV, driving with them, etc.).

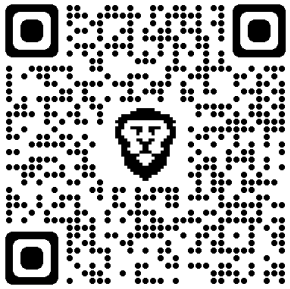
For research buyers accustomed to more traditional qualitative sessions where 30 or 40 respondents might be interviewed, an ethnographic marketing research proposal that recommends a sample size of 16 may seem a bit thin. The 'mile wide/inch deep versus inch wide/mile deep' analogy works well here. In a traditional two-hour focus group with eight respondents, each respondent might get about 10–15 minutes of 'airtime'. In ethnographic marketing research, each participant gets a significant amount of air time and they are observed in-context in a great amount of detail. Assuming that participants are well-recruited, even a sample size of six can provide a surprising wealth of information.

How do you record what happens in the field?

One could argue that a symbol for ethnographic marketing research is the digital camcorder, or, increasingly, the smartphone. The digital age has revolutionized the data collection process and digital technology has effectively brought participants and insights to life in the presentation boardroom.

The technological tools of ethnographic market research collection include camcorders, voice recorders, cameras, and smartphones. They do an excellent job of capturing consumer behaviour and demonstrations of dynamics of the brand relationship and can be used in almost any environment where they are allowed (homes, vehicles, retail locations, bars, streets, etc.). Voice recorders are useful in situations where verbatim capture is desired, but video recording isn't allowed (e.g. in a retail location). Cameras can be a primary or secondary data collection tool (e.g. taking hundreds of photos in-situ and then sorting them and building analysis around the categories created). Mobile ethnography or 'lifelogging' is becoming an increasingly popular tool because it allows the researcher a glimpse of life through the participant's eyes. Nevertheless, digital technology will never completely eliminate taking old fashioned field notes — paper and pen technology.

The videos, images or audio collected during ethnographic marketing research can be impactfully integrated into client deliverables. The final report could be an ethnographic film or could include video clips ('visual verbatims' or short vignettes around a particular theme or finding) or photo collages (collections of images sorted by emergent theme or insight). Another way to deliver findings is by developing participant 'profiles' — each profile representing a category of behaviour, a distinct expression of the brand relationship, or some other relevant cultural tendency.



What is the art of ethnographic research analysis?

Decoding the cultural embeddedness of consumer behaviour is the linchpin of ethnographic marketing research. The kinds of 'anthropological' questions asked during fieldwork — about social networks, values, identity, ritual, objects, community, etc. — and the direct observation of behaviour that illustrates these cultural concepts — will affect the information collected and the way it is analyzed. For example, in a study conducted with affluent owners of different luxury vehicles, the objective was to gain a deeper understanding of who these people are — their values, the way they expressed their social identity through their brand choices, and how they experienced their vehicles as owners and drivers. Researchers spent time with them in their homes, observed their interaction with owners of competitive brands of luxury vehicles, asked about possessions of significance, observed their driving rituals, and discussed how their brand choice acted as a marker of social identity and values. Researchers framed the interpretation of the data with these same sorts of anthropological concepts which led to insights around definitions of luxury and social identity that differentiated one brand from another. They were then able to translate these culturally situated findings into conclusions and recommendations that are relevant and actionable in informing marketing strategy and communications.

Conclusion

Ethnographic marketing research has become an entrenched and valued approach to understanding consumer behaviour. The research design, the kinds of information sought during fieldwork, the questions asked of the information during analysis, and the final deliverables all influence the outcome, which is concomitantly determined by the specific research objectives, budget, time, and needs for application/action. Ethnographic marketing research should be managed by marketing research professionals who are trained in its science and art.

Pilot Survey

When conducting an investigation we always want it to be efficient, to meet the goals and for the process to be carried out with the fewest number of difficulties. If you are determined to use surveys as a research method, one way to make sure that everything will go well is to do a pilot survey to help you detect any unforeseen events that may arise.

Every research project involves money, time and effort, so carrying out various tests before starting the process will be of great help, especially when a large number of participants are involved. Let's get into the world of pilot surveys.

What is a pilot survey?

People think that testing a survey takes a long time and requires a lot of resources to do it. The pilot survey is a strategy that helps to evaluate or test a questionnaire using a smaller sample size than the planned sample.

Any test is better than none, so if you are going to do a survey it is best to test it with the resources you have available, keep in mind that even applying it to a very small group of people you can make significant improvements to your research.

Uses of a pilot survey

You can make use of pilot surveys to:

- Apply it to a small group that will not be evaluated in the original survey.
- Consider the responses of a selected group as the first results obtained from the project.
- You can also use a pilot survey as the definitive survey of your **research** and deliberately ask participants for feedback, for example asking them how clear the instructions are or what questions are difficult to answer.

After obtaining and analyzing results from the pilot survey, logistical, technical and any other issues can be addressed. You can correct the questions on your survey or choose the most appropriate types of questions if, for example, you are going to carry out an online survey.

A pilot survey can be used to detect the lack of training of the personnel to be surveyed, issues with the logistics of distribution and collection of the survey as well as errors in the data recording. These problems can be fixed before taking the actual survey.

(Source: https://www.questionpro.com/blog/pilot-survey/)

Carrying out a pilot survey

Look at the activity given below to understand how a pilot survey is carried out:

Divide yourselves in two groups, one will be interviewing the teenagers and the other group will be interviewing the parents. Refer to the questionnaires given below and in your respective groups decide which are most significant questions that you would like to keep in your questionnaire. You can only delete five questions from the questionnaire provided to you.

Outline of questionnaire for parents

1. Demographic questions (age, gender, number of children, etc.)
2. How often do you purchase smartphones for your children?
3. What is the most important factor in your decision to purchase a smartphone for your child?
4. How much are you willing to spend on a smartphone for your child?
5. How important is durability in a smartphone for your child?
6. How important is battery life in a smartphone for your child?
7. How important is the camera quality in a smartphone for your child?
8. How important is the storage capacity in a smartphone for your child?
9. How important is the processing speed in a smartphone for your child?
10. How important is the display size in a smartphone for your child?
11. How important is the brand in a smartphone for your child?
12. How important is the design of a smartphone for your child?
13. How important is the security of a smartphone for your child?
14. How important are parental controls in a smartphone for your child?
15. How important is the availability of apps in a smartphone for your child?
16. How important is the availability of educational content in a smartphone for your child?
17. How important is the availability of entertainment content in a smartphone for your child?
18. How important is the availability of social media platforms in a smartphone for your child?
19. How important is the availability of messaging apps in a smartphone for your child?
20. Do you have any additional comments or concerns about purchasing a smartphone for your child?

Outline of questionnaire for teenagers

1. Demographic questions (age, gender, grade level, etc.)
2. How often do you use your smartphone?
3. What is the most important factor in your decision to purchase a smartphone?
4. How much are you willing to spend on a smartphone?
5. How important is durability in a smartphone for you?
6. How important is battery life in a smartphone for you?
7. How important is the camera quality in a smartphone for you?

8. How important is the storage capacity in a smartphone for you?
9. How important is the processing speed in a smartphone for you?
10. How important is the display size in a smartphone for you?
11. How important is the brand in a smartphone for you?
12. How important is the design of a smartphone for you?
13. How important is the security of a smartphone for you?
14. What do you think will be the most important factor for your parents to consider when approving the purchase of a smartphone for you?
15. How important are parental controls in a smartphone for you?
16. How important is the availability of apps in a smartphone for you?
17. How important is the availability of educational content in a smartphone for you?
18. How important is the availability of entertainment content in a smartphone for you?
19. How important is the availability of social media platforms in a smartphone for you?
20. How important is the availability of messaging apps in a smartphone for you?
21. Do you have any additional comments or concerns about purchasing a smartphone?

After finalising the questionnaire, follow the instructions given below to carry out the final pilot survey in the school.

1. Both groups should have the final version of their questionnaires ready, and have five to ten copies made of each questionnaire.
2. Each group should form five teams, the members in each team is a function of the class strength
3. Each team should interview at least one, preferably two respondents. The parents' interview can be administered to teachers on campus, while the teenagers' interview can be students from a different division, or students in a class that is one year junior/senior
4. Each team should conduct two interviews so that students get to ask questions, and record responses, and validate them
    a. Assume there are five students in each group. Two students are the designated "askers", two are the designated "recorders" while the last student's job is to audit the whole process as it proceeds. Depending on the number of students, these roles can be scaled up or down as per necessity.
5. There should be, ideally, at least ten responses in total, and certainly no lesser than five. More is always welcome, subject to time constraints.
6. Once all the responses are collected, the information must be fed into a Google Sheet that is shared with the whole class

Limitations of Marketing Research

On the basis of your understanding of the module, list out some limitations of the marketing research process