

Midterm - INTD262

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1 Unit 3

1. Recall the fascinating story about psychological research, in which the author shares that 67 percent of psychologists who were asked to share their data did not share it. (a) Were the rates of error higher or lower in the studies for which the authors did not share data? (b) In whose favor were the errors?

(a) The rates of error were higher in the studies for authors that did not share their data

(b) The rates of error were lower in the studies for authors who did share

2. “Recent research in behavioral economics has shown that groups are often better than individuals at finding errors in reasoning.” (a) Why do you think this is the case? (b) Can you give an example of the wisdom of crowds thus far in our study of Latin American science?

(a) With more people, you get different types of perspectives, scientific reasoning, reduce likelihood of biasness, and agreement on certain things

(b) An example would be the group of scientists who discovered the scientific explanation behind the Aurora lights

3. Recall the story of cold fusion. (a) List three facets of the peer review process that went wrong in this episode. (b) How long, from start to finish, did it take for the scientific community to sort out the errors in the cold fusion research?

(a) The peer reviewer, the authors, and the journal editors

(b) It took less than two months after it was announced April 10-May 18 in 1989

4. Note that we encountered several examples of viceregal engineers becoming Latin American leaders. (a) What are some examples of professions that involved modern technical skill in Río de la Plata and Perú? (b) What is the primary profession of modern US leaders, for example, elected to The United States Congress?

(a) Professions relating to political and economic autonomy

(b) It is usually business officials or people with government status

5. José Mariano Mociño and others were ordered by the Mexican viceroy on an expedition to Nootka Island. What was the purpose of the expedition? (Take INTD255 to learn more!)

The purpose of the expedition was to explore the New Granada and expand on scientific discoveries, such as new plant species and medicine, and cartography

6. In Perú, we must take note of the work of Hipólito Unzué. (a) What are some of his other scientific contributions? (b) In Nueva Granada, we must take note of the work of José Celestino Mutis. What are some of his main contributions?

(a) He put his medical, botanical, geographic, and historiographic knowledge to the service of the projects of the Viceroyalty of Lima. He supported the Society of Lovers of the Country and served as a secretary to several viceroys, such as the Political, Ecclesiastical, and Military Guide to the Viceroyalty. He wrote a publication called the “Observations on the Climate of Lima and Its Influence on Organized Beings, Especially Man, 1805” and became the director of the Board of Medical Examiners in 1807

(b) His main contribution was the Royal Botanical Expedition of New Granada

7. (a) When did Latin American wars of independence begin, approximately? (b) Give some examples of scientists and engineers who fought and died for their countries.

(a) It began approximately in 1810-1824

(b) Some examples are..

2 Unit 4

1. How long after Semmelweis's solution to childbed fever was germ theory introduced?

It was approximately 14 years between 1846-1860s after Semmelweis's solution was introduced

2. Where did the practice of autopsies begin? In what way does performing an autopsy fit with the scientific attitude?

It began in Paris. By performing an autopsy, we can confirm what exactly the person's cause of death truly is instead of speculating what it could have been.

3. (a) Do you think the discovery of penicillin was an accident? Why or why not? (b) Louis Pasteur is quoted as saying "chance favors the prepared mind." What did he mean by this? (c) In light of (a) and (b) do you regard the discovery of cinchona as accidental or scientific?

(a) I think the discovery was partially an accident because he didn't mean to leave the petri dish unattended but he was working with the staphylococcus before. This means he had some idea or question about the effects of staphylococcus on mold. Maybe months later, he would have found the same result without accidentally leaving it on the table.

(b) I think the better prepared someone is, such as already having the scientific attitude and mindset, then when the opportunity of new discoveries comes, they will be able to take action in the right way

(c) I think the discovery of cinchona was not an accident because they could have had knowledge of its effects of similar types of diseases or illnesses. By knowing it could heal certain types of sicknesses, they could use scientific reasoning to hypothesize whether the cinchona would be a better treatment to sickness than another herb or bark

4. What event catalyzed the formation of the Establecimiento de Ciencias de M'edicas in 1833?

The liberal reforms of the war for independence

5. (a) List some reasons the authors give to explain why medical reforms were slow to materialize in Nueva Granada, relative to the struggle for reform in Nueva España. (b) Who led the medical reform process in Nueva Granada in the 18th century? (c) When and where was the Facultad de Medicina reestablished in Nueva Granada, and what happened next?

(a) They had only graduated two doctors during the colonial period and functioned until the War for Independence began then they had to restart their programs of study. There was also the educational politics that weakened all of the institutions including the medical communities which led to all universities to close in 1850

(b) Jose Celestino Mutis

(c) In 1802, the Facultad de Medicina was reestablished in the Kingdom of New Granada in the Colegio del Rosario. The school was reopened after an important polemic concerning the problem of health and medicine then closed due to the start of the War for Independence. After Independence, programs were restarted and then closed again

6. (a) How many medical schools were there in Brazil in the eighteenth century? (b) What happened to the Portuguese Crown in 1807? What influence did this have on medical reform?

(a) There was only one

(b) This caused medical reforms little modifications and they maintained the same empirical system of teaching that was established from before and added ideology of

Enlightenment. However, they had to close and reopen the schools and universities often

7. As the generation of doctors in Columbia returned from France in the late 19th century, what three cultural institutions did they establish to enhance medical practice?

The microbiology, the medicine, and pathology departments

8. Triangulation Suppose you observe a distant mountain from a flat plain. Suppose you walk a baseline of 1km, perpendicular to the direction towards the mountain. The difference between the compass headings to the mountain at either end of the baseline is 5 degrees. How far away is the mountain?

(a) $D = b/\Phi$

5 degrees ($\pi/180$ degrees) = 0.09 radians

1km \rightarrow 1000m

1000m/0.09 radians

$d = 11111.1$ m

so they are 11111.1 m or 11.1km away from the mountain

9. Latitude and Longitude (a) Suppose two cities lie along a constant line of longitude. If we measure a change of 30 minutes (0.5 degree latitude) between them, how far apart are they, in km? (b) Suppose two cities lie along a constant latitude of 45 degrees North. If they are 600 km apart, what is the change in longitude between them?

(a) $S = r\theta$

= (6,371 km) (0.5 degrees)

$S = 3,185.5$ km so they are 3,185.5 km apart from each other

(b) $s = \Phi r \cos\theta$

$\Phi = 600\text{km}/6,371 \text{ km}(\cos 45\text{degrees})$

$\Phi = 0.179$ is the change in longitude

3 Unit 5

1. (a) When were the first medical journals published in Columbia? (Give a few examples). (b) Compare this time frame to the publication of the first mining, chemistry, and physics journals in

Mexico. (c) How, or through whom, were these journals connected to medical schools in Columbia?

(a) La Coyota Medica (1864) and La Lanceta (1852)

(b) This was similar in the way of having to reform the school courses and build the schools took a longer time to finish

(c) Through Antonio Vanges Reyes (1865) by translating the languages

2. In 1833, two Enlightenment period institutions were merged into the beginnings of a modern medical school in Mexico. What were the three institutions?

These were the Facultad de Medicina, Escuela de Cirugía, and the Establecimiento de Ciencias Mediens

3. Consider our major in kinesiology and nutrition science (KNS). To what extent would we consider this medicine, in the absence of modern germ theory? That is, are there other holistic forms of medical development we encountered in Latin American history besides vaccines and drugs that fight bacteria and viruses?

In KNS, the practice of being a chiropractor could be considered a type of medicine that helps back or spine pain as they physically realign the bones back in the proper place. We have also discussed indigenous medical treatments, such as traditional herbs and practices, were used to treat diseases and wounds.

4. (a) What historical event in 1808 led to the creation of the first medical and surgical schools in Brazil (b) When did Brazil declare independence from Portugal? (c) How long after independence did the Brazilians introduce modern reforms into the medical schools in Bahia and Rio de Janeiro?

- (a) Antonio Jose de Lisboa, the Sao Paulo's captain general, officially instituted a surgery class in the military hospital of the Paulist capital but Dom Joao transferred the seat of the Portuguese state to Rio de Janeiro for teaching medicine and surgery would be justifiable
- (b) They declared independence in 1822
- (c) It was 7 years after their independence or 1829

5. In Columbia, the Escuela de Medicina was founded in 1865. It was centered on hospital-based anatomy and physiology. Consider the following quote from the text: "The second phase is notable for the slow progress of laboratory-based medicine, especially etiopathological procedures. Its final stage, starting in the 1950s, is defined by the introduction of Flexnerian reforms from North American technological medicine." What does quote mean by Flexnerian? Think back to our reading in The Scientific Attitude.

I think this quote means there was slow progress at the second phase because Flexnerian had pointed out all of the medical schools' false claims of being a legit medical school which led to schools having to rebuild their curriculum and buildings. The laboratory-based medical schools were only doing the bare minimum required to be considered legit instead of doing more than the minimum and applying the scientific attitude toward their curriculum.

6. (a) What was a major driver of modern epidemiology in 19th Century Brazil? (b) What was the purpose of the Tropicalist School of medicine? (c) When did the bubonic plague enter Brazil, and how did the Brazilians respond?

- (a) There was diseases from tropical terrain such as tuberculosis
- (b) The purpose of the Tropicalist School of medicine was to move patients with tuberculosis to areas of hot or dry temperature in an attempt to remove the buildup of gunk from their lungs

(c) The Bubonic Plague entered Brazil in 1899. The Brazilians responded by developing a vaccine against the Bubonic Plague with the help of Dr. Oswaldo Cruz