



L&T Mini Conference 2013



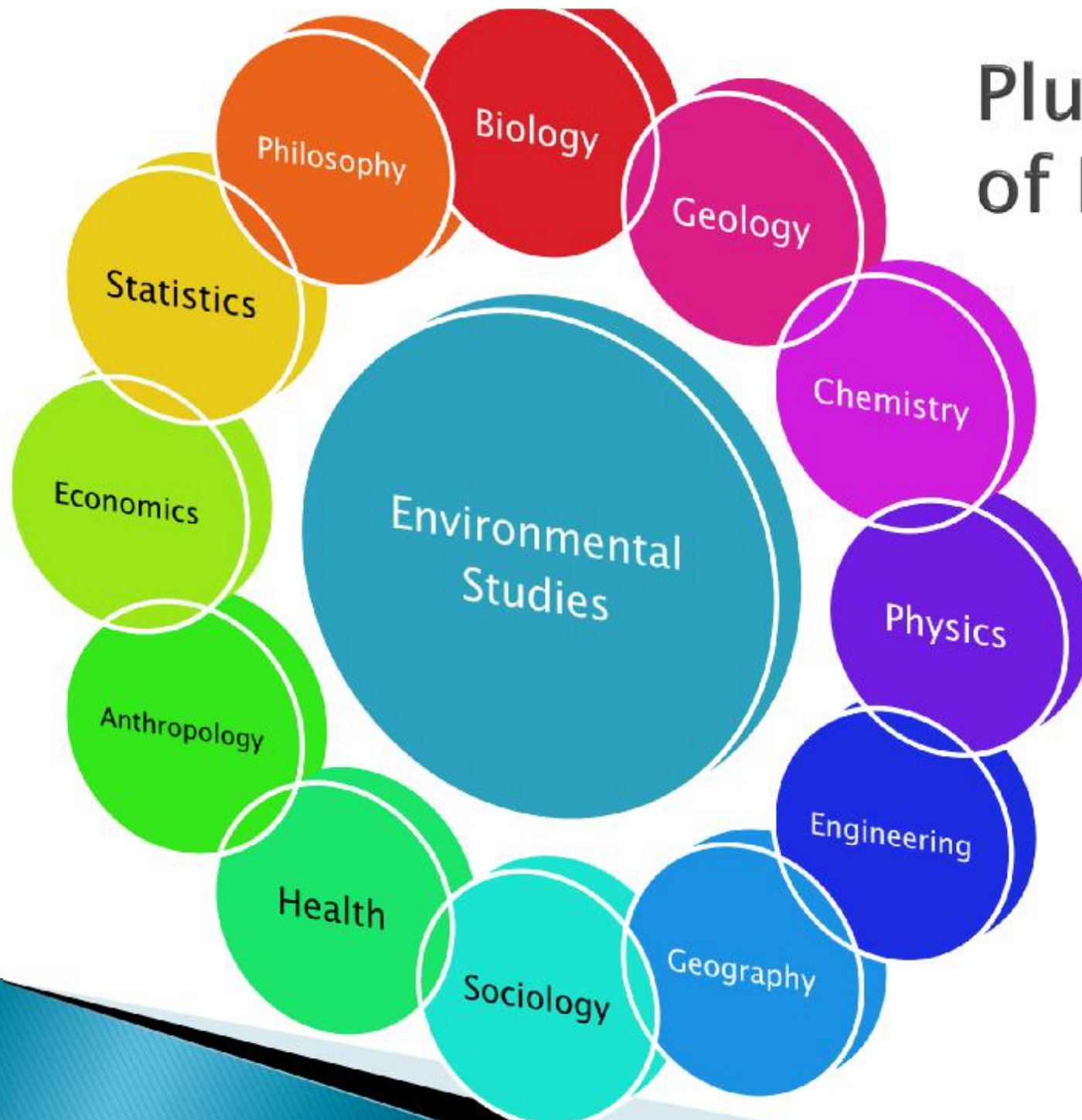
Field-based learning in environmental studies

Lincoln Fok
Science & Environmental Studies
FLASS





Pluralism of ES



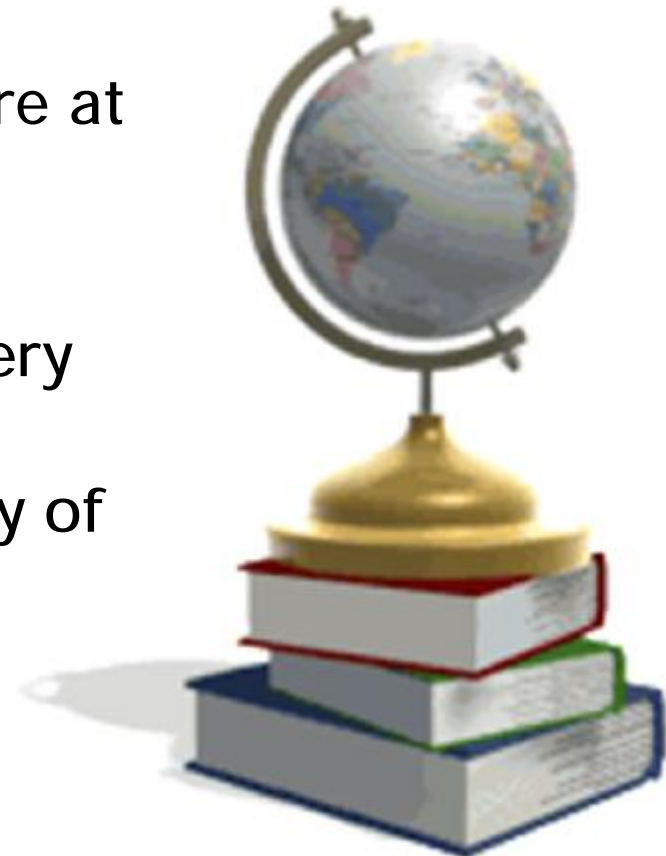
Spatial Scales of ES

} LARGE!

- Relative to the size of a student or classroom
- Hottest issues being studied are at global scale

} Therefore:

- Teaching materials of ES are very likely to be distilled products
- Loss of the multidimensionality of the subject
- Loss of **authenticity**



The Belgrade Charter 1975

Framework for environmental education

} Goal:

- “To develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the **knowledge**, **skills**, **attitudes**, **motivations** and **commitment** to work individually and **collectively** toward solutions of current problems and the prevention of new ones.”

} Knowledge, Attitude, Behavioural change



Environmental Education

- } More than studying the environment *per se*
- } Paradigm shift from:
 - Expansionist worldview to steady-state worldview
- } Limits to growth (1972)
- } Lucas, A.M. (1972) – three approaches
 - Education **about** the environment
 - Education **in** the environment
 - Education **for** the environment
- } Education for sustainable development (ESD)
 - Mainstream and trendy?



Field based learning

- } Alternative / complementary to traditional classroom learning
- } Learn from experience
 - Involves a direct encounter with what is being studied, rather than only talking / thinking about the subject
- } As a vessel to carry out environmental education
 - Why?
 - “Why are we doing this?” is why we are doing this



Authenticity

} *Authentikos* (Greek)

- Genuine, real, free from hypocrisy, not false or copied
- Reaffirmation and not changed
- A social construct that is dependent upon individual's own knowledge and frame of reference

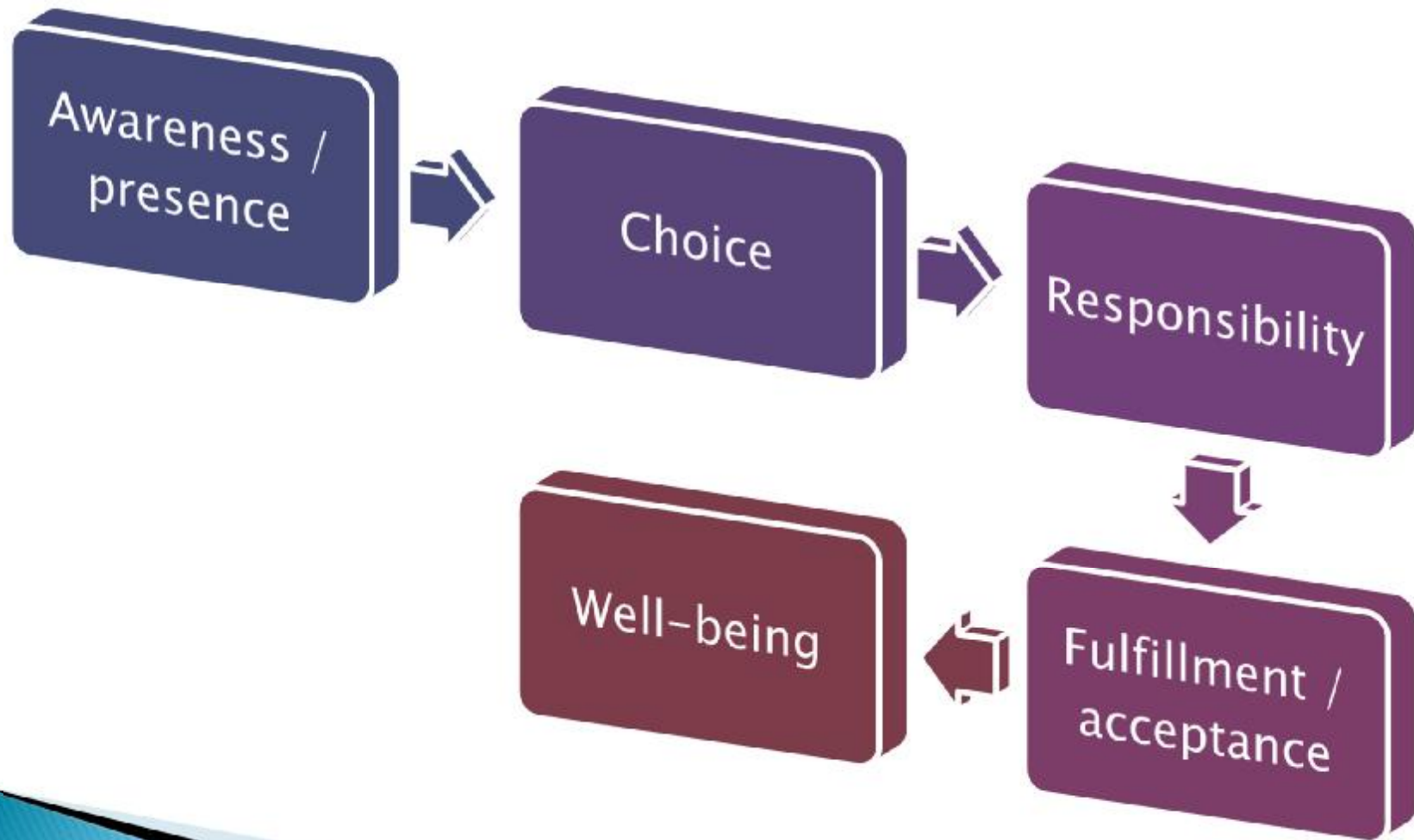
} Authenticity not necessarily equals reality

- Reality (field) often involves extensive knowledge, many of which, irrelevant to the inquiry at hand
- Very likely considered “overkill” by students

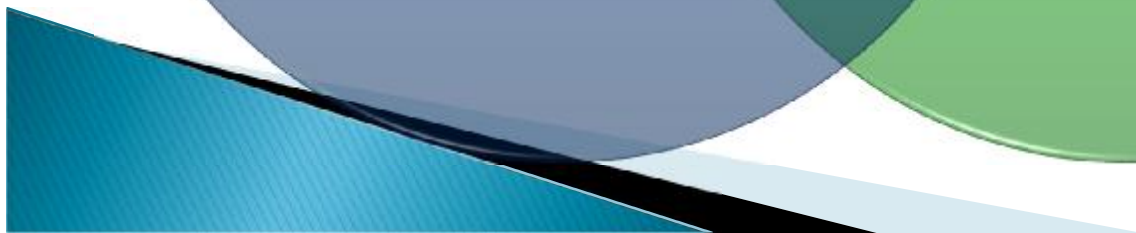
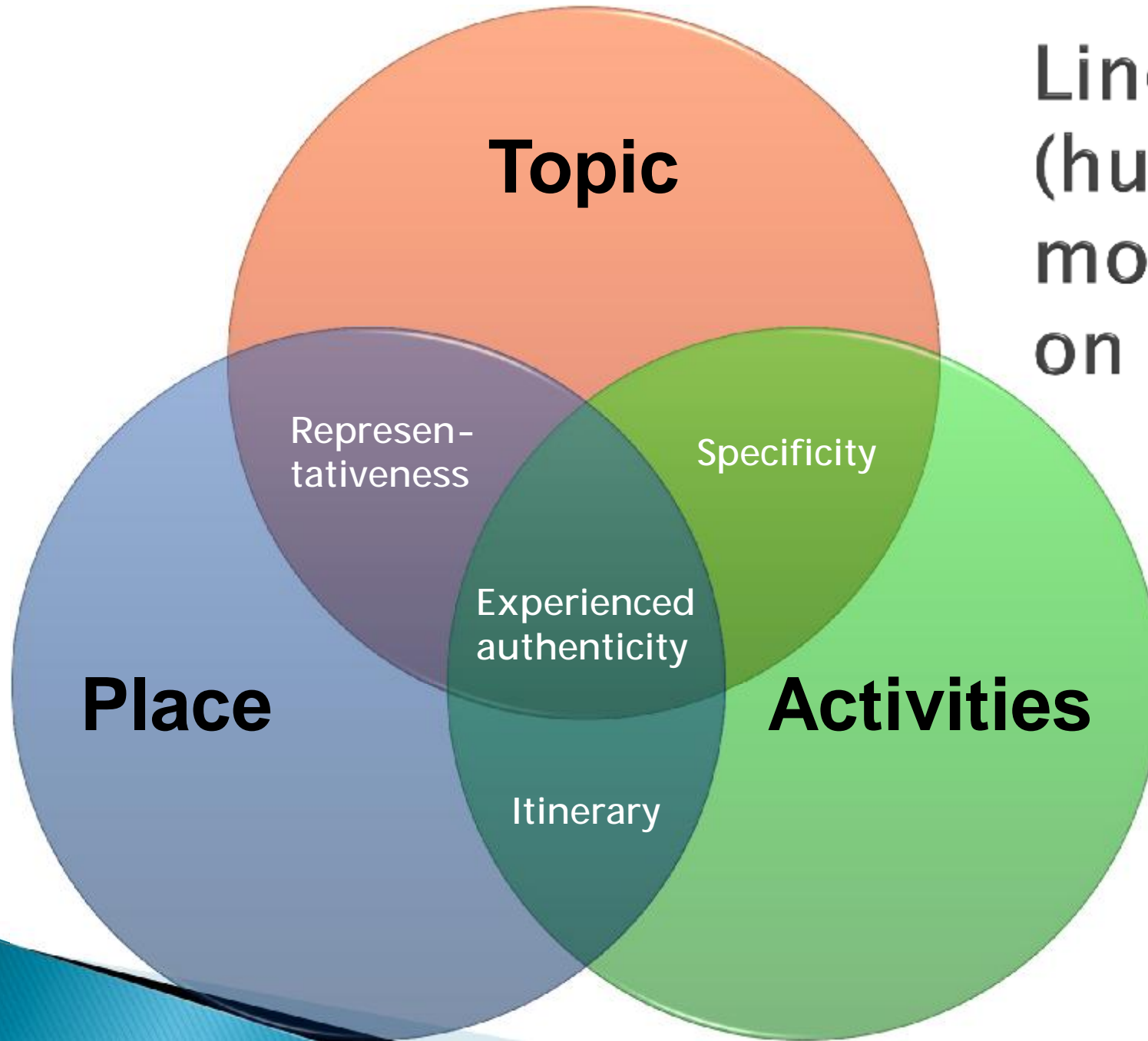
} Symbolism and commodification (distillation)



Authenticity motivates behavioural change



Lincoln's
(humble)
model
on FBL



} Representativeness

- Dependent upon topic & obviously, resources
- Trip- and site-level locations
- Maps and tools

} Specificity

- Design and planning
- Briefing and instructions
 - Methodical observation

} Itinerary

- Pre-trip(s)
- Weather & safety concerns



Case: Water Quality

SES1002 Environmental Change: concepts and debates

} Topic

- Experience water pollution, first hand (why do we care?)
- Controls / sources of water pollution
 - both natural and human factors
- Related concepts learned in lectures
 - DO, BOD, self purification ability of nature etc...

} Location

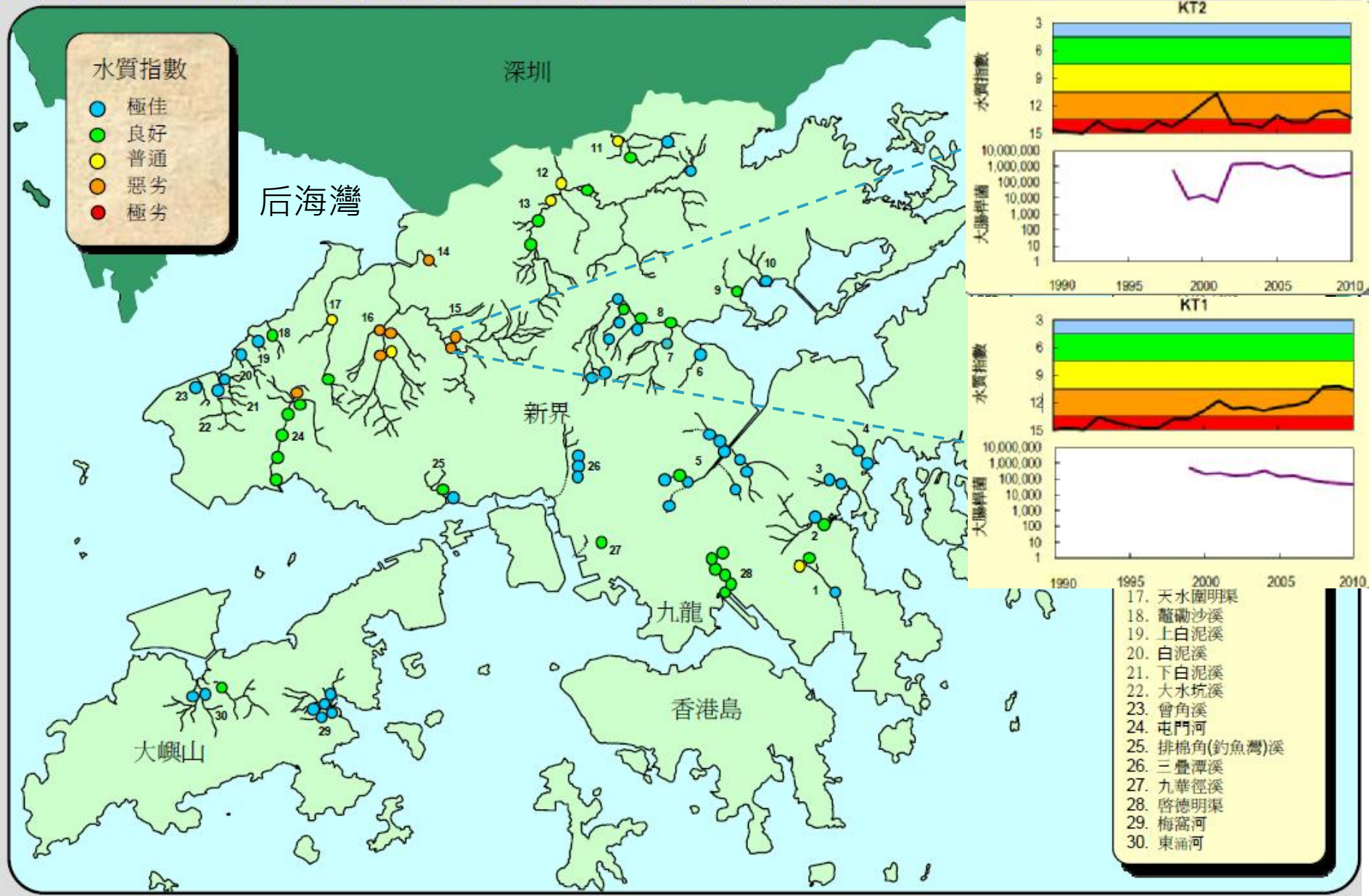
- Most polluted? Kam Tin basin
- Sites and extra sites

} Activities

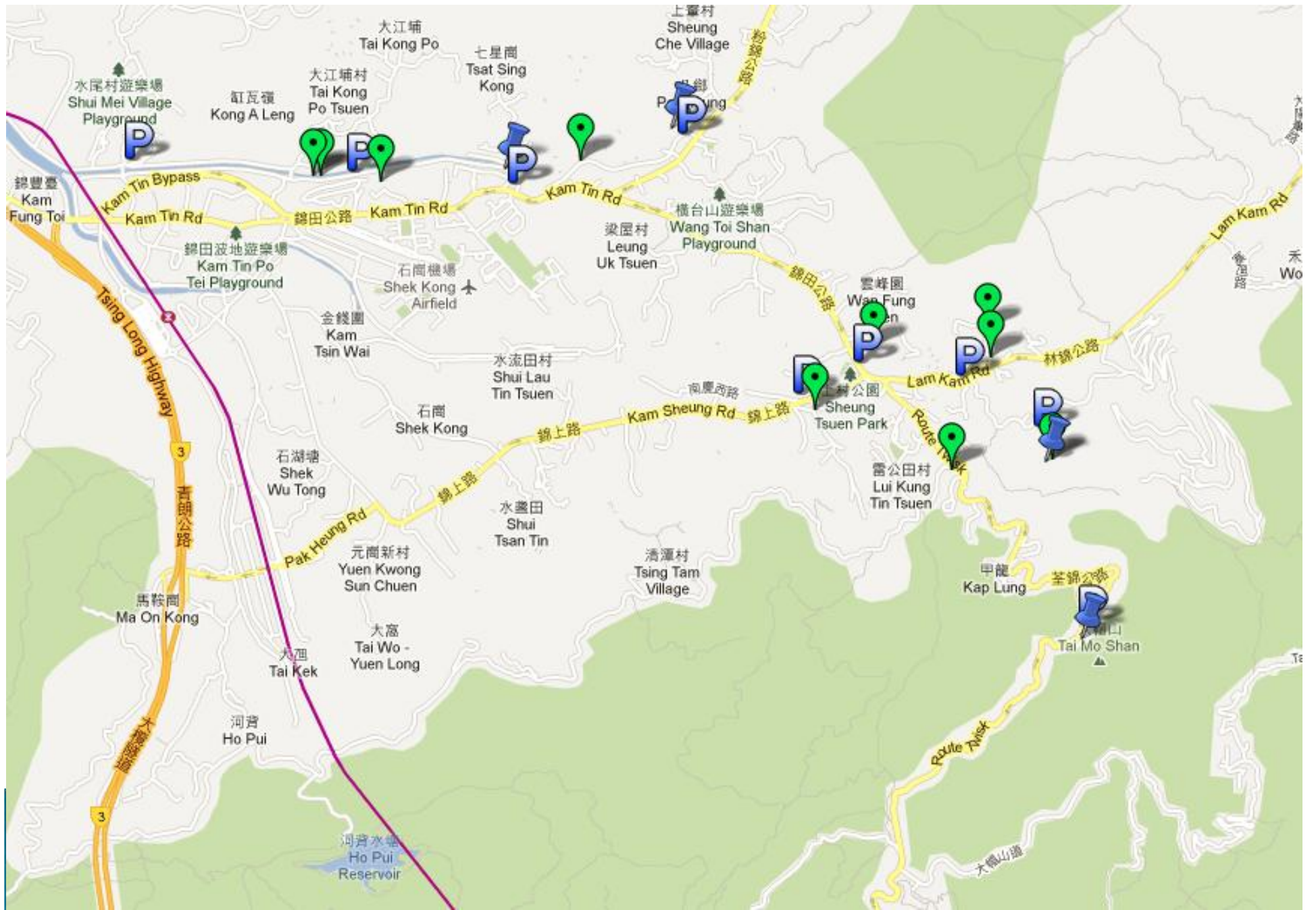
- “You can’t manage what you don’t measure”
- Sample collection, field observation, lab & data analysis, reporting
- Other skills: map reading (paper and google maps), aerial photo interpretation



環保署於2010年所監測的河溪監測站位置及其水質指數



HKEPD 2010香港河溪水質報告



Sampling Sites

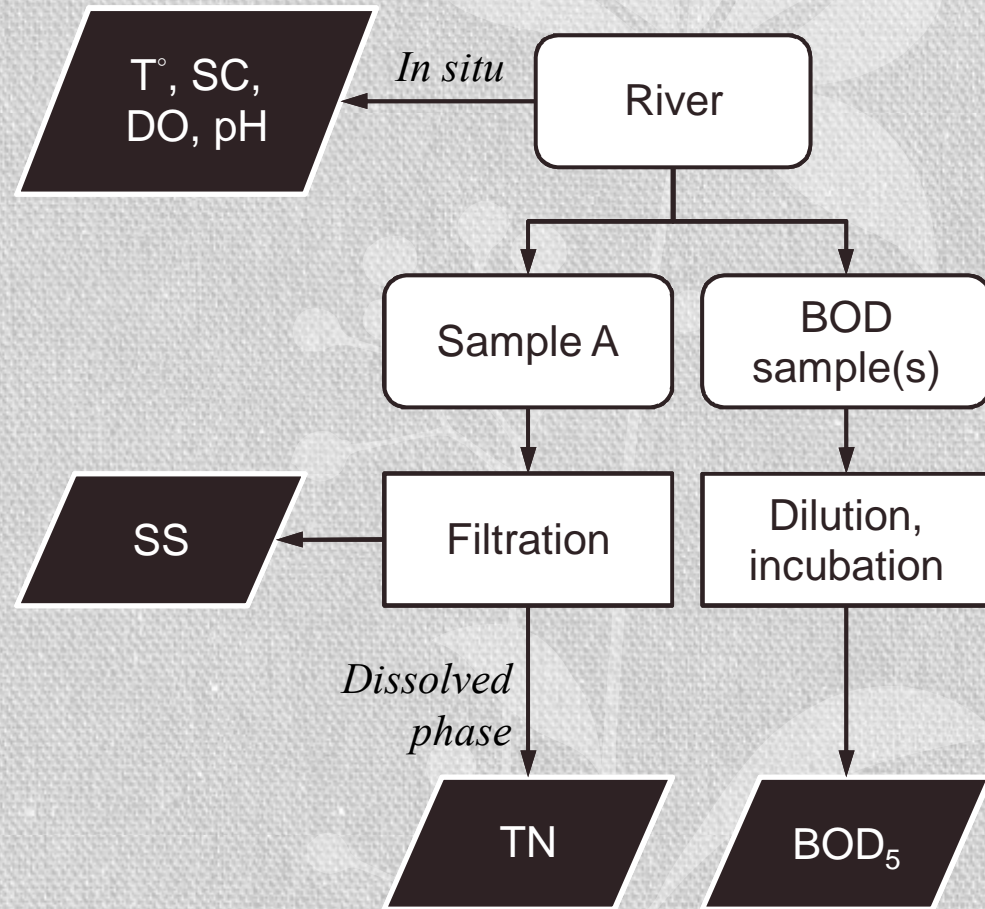
- 8 sites, 2 replicates (*)
- Upland sites (3)
 - AC*, WCYa, WCYb
- Lowland sites (5)
 - Shell, KTN, KTM, CKT, KTP*
- NOTE:
 - Field observations: GPS coordinates, land use, pollution sources
 - Also from maps, paper and digital
 - maps.google.com
 - www.map.gov.hk





WQ Parameters

- In-situ
 - Water temperature (T°)
 - Specific conductance (SC)
 - Dissolved oxygen (DO)
 - pH
- Back to laboratory
 - Five-day biochemical oxygen demand (BOD_5)
 - Suspended solids (SS)
 - Total nitrogen (TN)



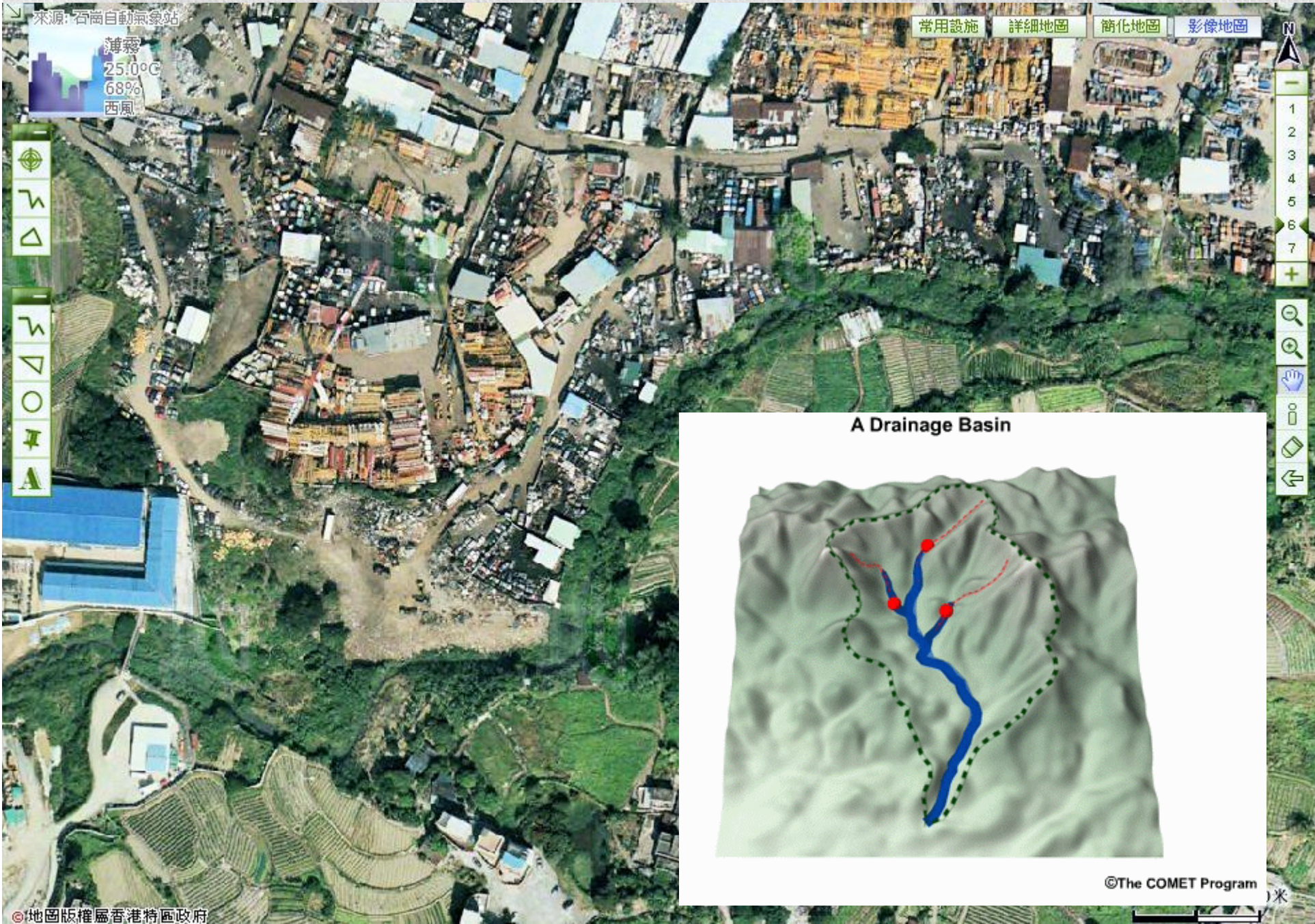
Field work

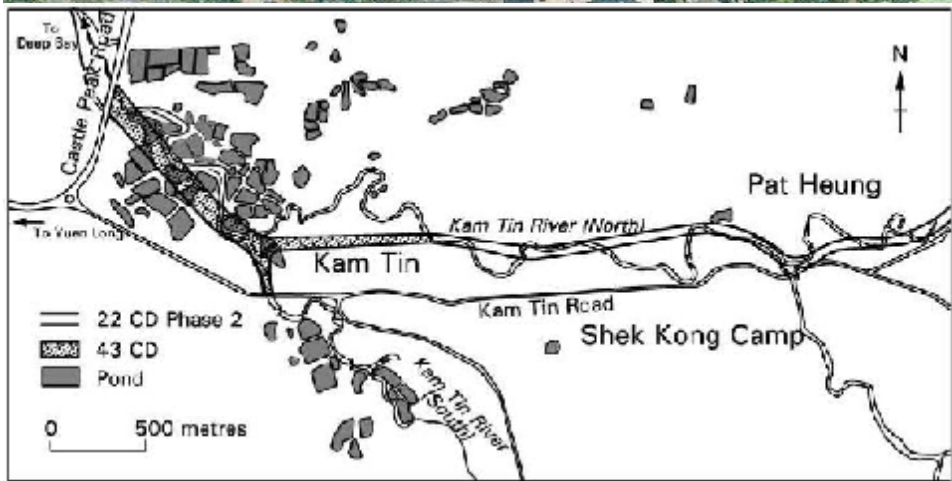
- Sample collection
 - Think about error, how can you make sure your sample is representative?
- Field observation
 - Be sure you turn on your navigation and read the maps
 - Keep an eye on the changes in land use and pollution sources
 - Even on the vehicle
 - How well you can discuss the data in your report very much depends on your field observations
- Ask questions!



Site Description Forms

Site ID		Date & Time	GPS coordinates	Dominant land uses
Channel width [m]	Channel depth [m]	Dominant substrate Fines / Sand / Gravel / Cobble/ Boulder / Bedrock / Concrete		
Dominant riparian vegetation: Wetland / Grass / Fern / Shrub / Trees / Mixed (successional)		Water appearance: Very turbid / Turbid / Moderately turbid / Clear	pH: _____ DO.: _____ mg/L, _____ % Temp.: _____ °C	
Pollution issues:			Cond.: _____ μS	
Sketch of the river section indicating where the sample was taken				





Pretrips

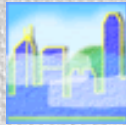


Field trip schedule

Time	Location	Sites
0800	西樓角路美心皇宮對開 – 荃錦公路 – 雷公田村	
0830	Army camp 林錦公路 – 凌雲寺路口	AC
0915	RDH (on foot) 林錦公路 – 迴旋處	WCYa, WCYb
1000	Shell [WC] 錦田公路 – 七星崗	Shell
1045	Seasons villas - 錦泰路 (on foot) 1.5 km, 20-minutes walk Coach go to 大江埔村村公所	KTN, KTM, KTP, CKT
12:15	Leave for IEd	
13:00	HKIEd	Laboratory

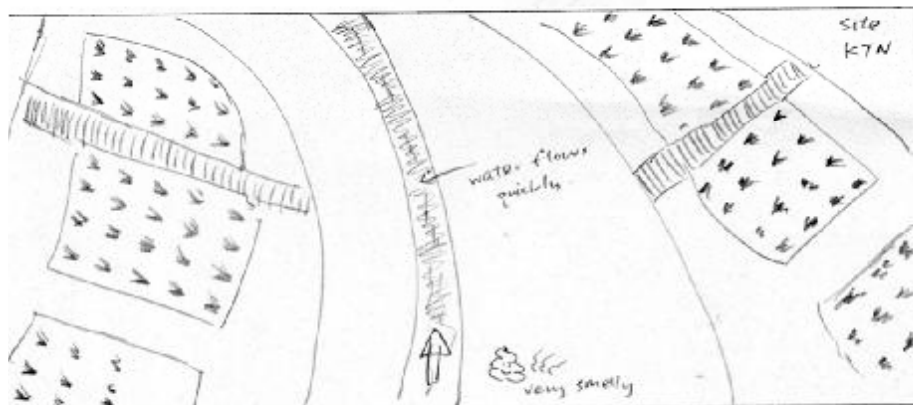
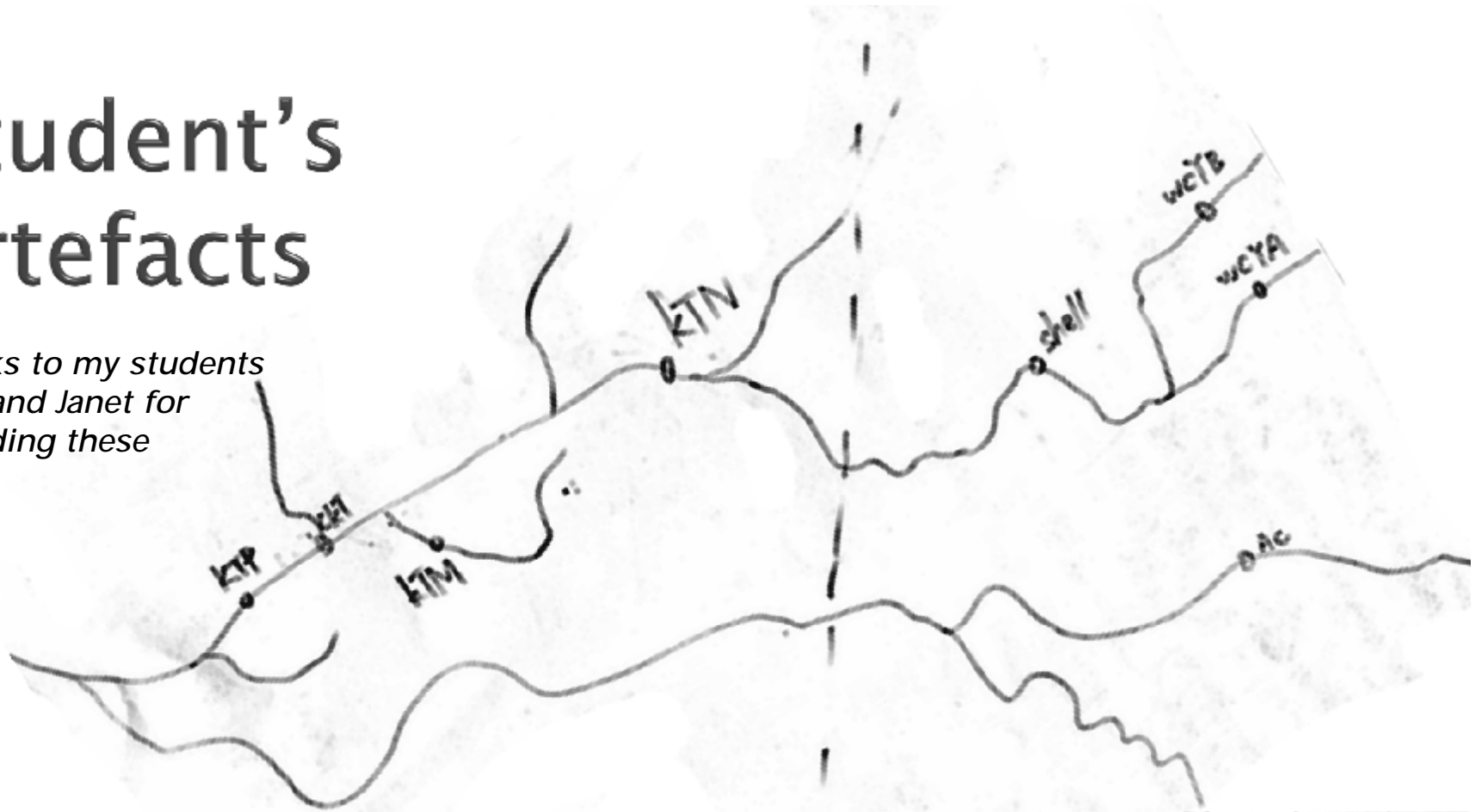
Prepare for the trip

- Attendance is mandatory
 - Absence is consequential
- Appropriate clothing
 - Walking shoes!
 - Rain gear!
- Water & a little something to eat
- Notepad & pens for recording information
- Observe & record at all sites
- Share the work load!
- *****PERSONAL SAFETY IS AN ABSOLUTE PRIORITY*****
- Road traffic

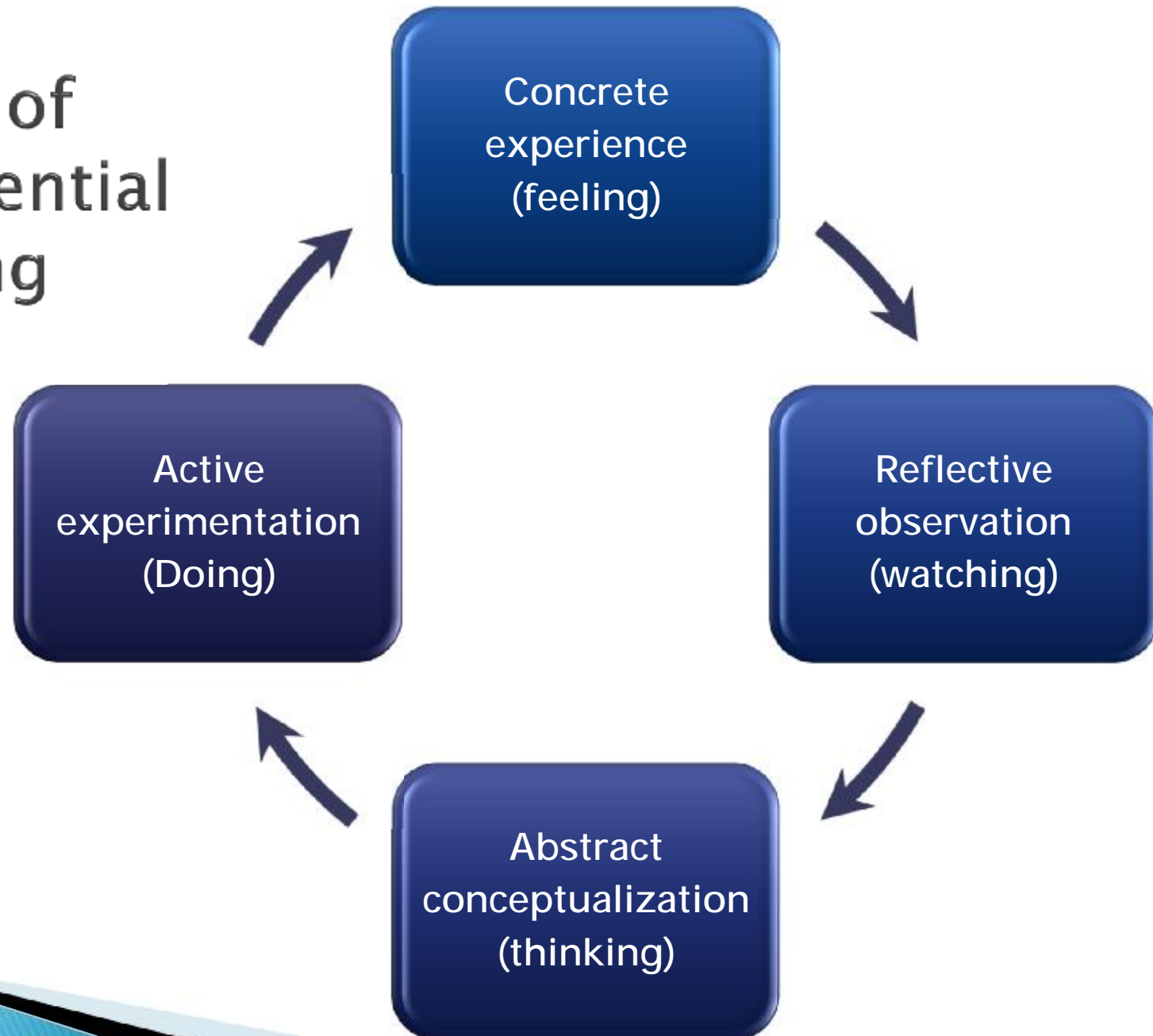


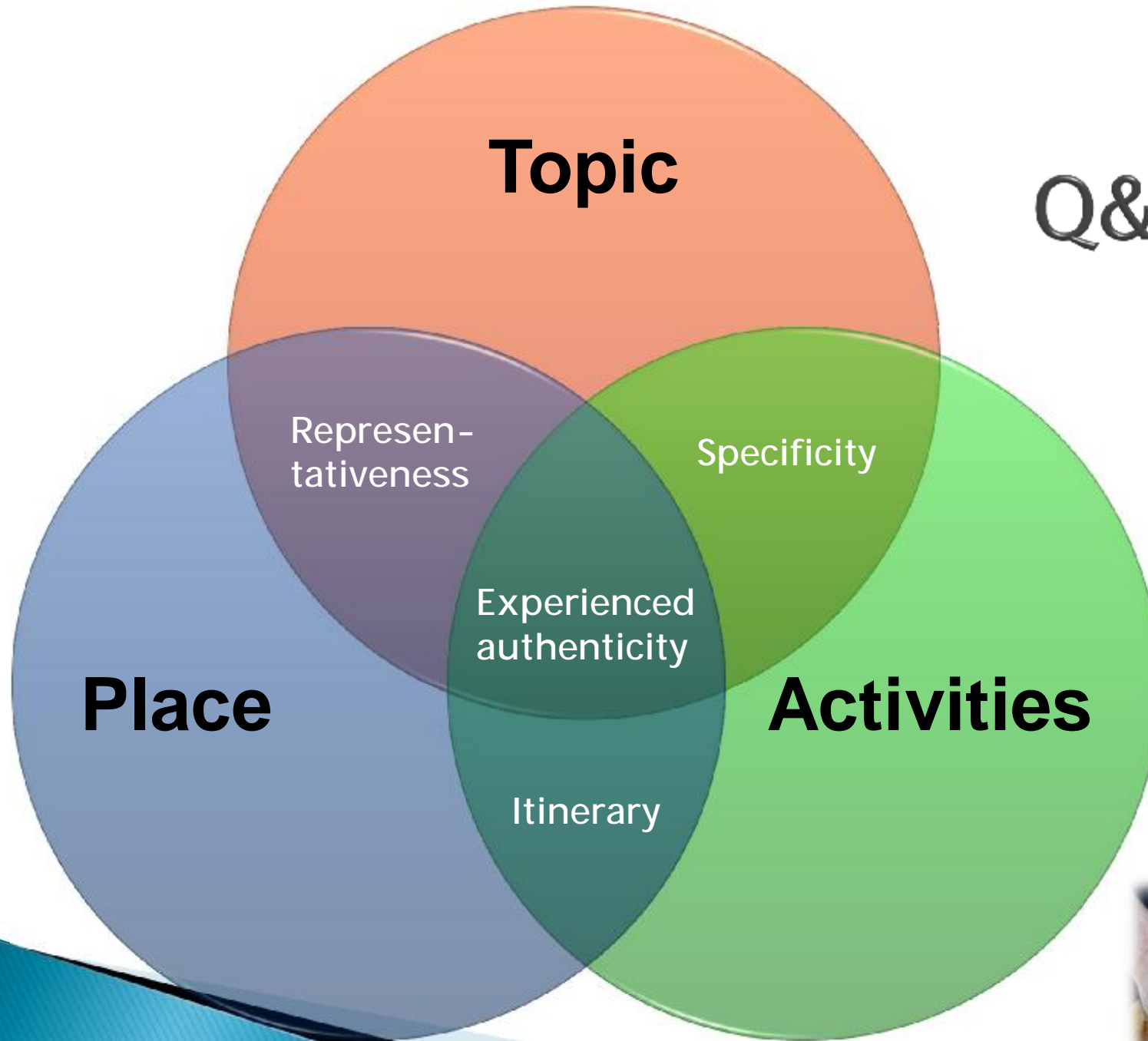
Student's artefacts

Thanks to my students
Jerry and Janet for
providing these



Kolb's model of experiential learning (1984)





Q&A

