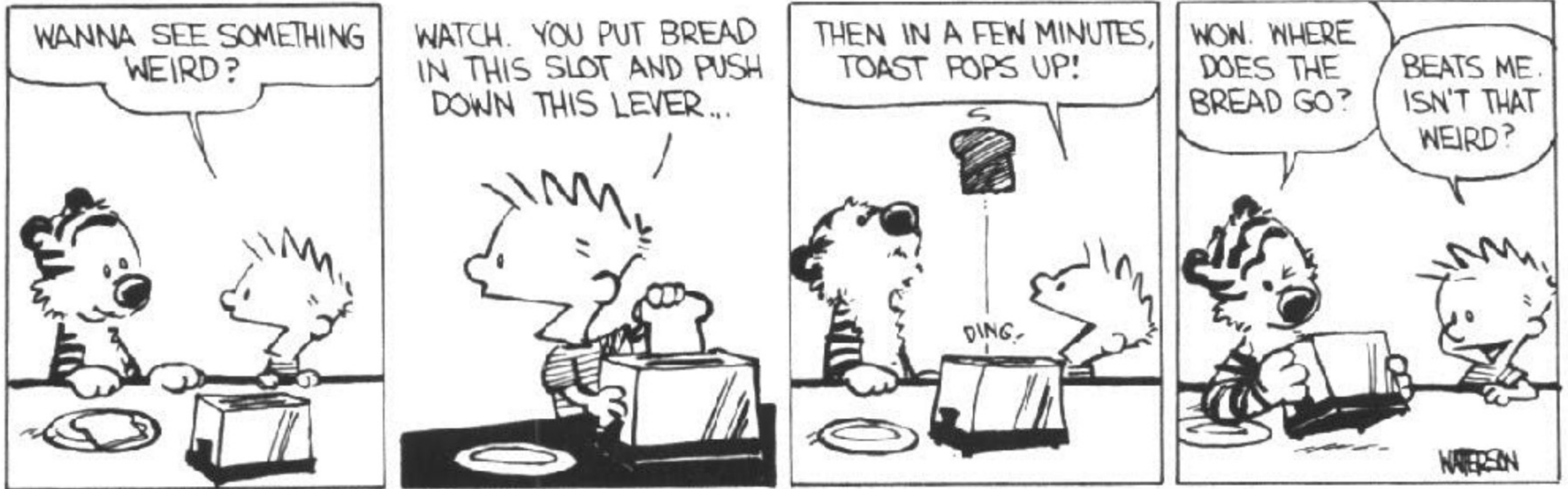


The Nature of Science

What is 'Science', and how do you see it? What role can science play in city design?

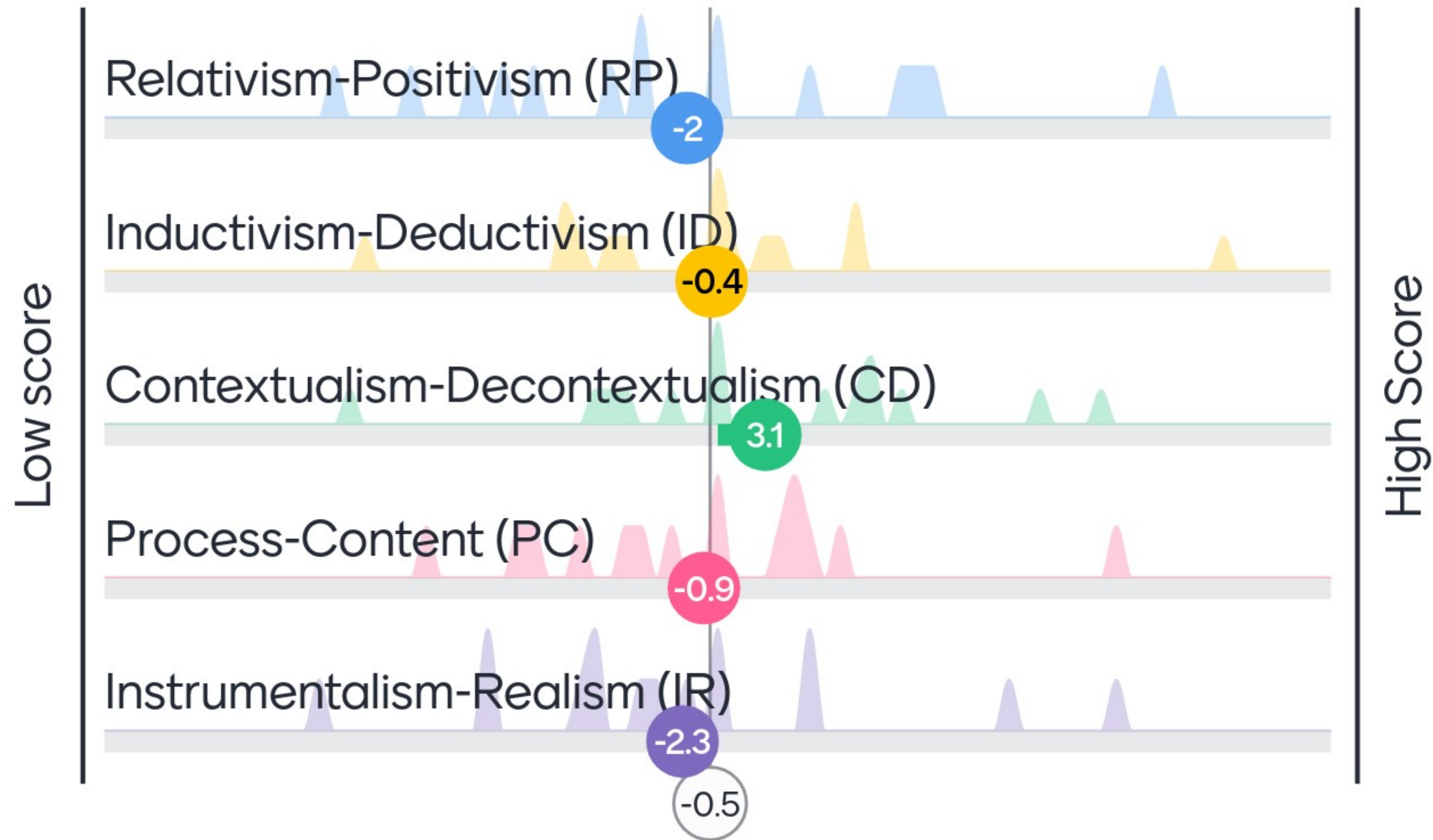


Instructions for the session:

- 1. Go to the excel spreadsheet in the files tab and complete the questionnaire
- 2. On the next slide, add your scores
- 3. Read through the material on the remaining slides to interpret your score. How similar is your score to the group mean and range?
- Reflect: This questionnaire is based on common ideas about science. How does the complexity science approach fit with these scales?
- Reflect: What do different perspectives on the nature of scientific knowledge and processes suggest about the role of science in the future of cities?
- Now go to the session discussion thread and contribute!



Nature of Science Scales



RELATIVISM/POSITIVISM

Relativist

You deny that things are true or false solely based on an independent reality. The 'truth' of a theory will depend on the norms and rationality of the social group considering it as well as the experimental techniques used to test it.

Judgements as to the truth of scientific theories will vary from individual to individual and from one culture to another i.e. truth is relative not absolute.



RELATIVISM/POSITIVISM

Positivist

You believe strongly that scientific knowledge is more 'valid' than other forms of knowledge. The laws and theories generated by experiments are our descriptions of patterns we see in a real, external objective world.

To the positivist, science is the primary source of truth.

Positivism recognizes empirical facts and observable phenomena as the raw material of science. The scientist's job is to establish the objective relationships between the laws governing the facts and observables.



INDUCTIVISM/DEDUCTIVISM

Inductivism

You believe that the scientist's job is the interrogation of Nature. By observing many particular instances, one is able to infer from the particular to the general and then determine the underlying laws and theories.

According to inductivism, scientists generalize from a set of observations to a universal law 'inductively'.

Scientific knowledge is built by induction from a secure set of observations.



INDUCTIVISM/DEDUCTIVISM

Deductivism

You believe that scientists proceed by testing ideas produced by the logical consequences of current theories or of their bold imaginative ideas.

According to deductivism (or hypothetico-deductivism) scientific reasoning consists of the forming of hypotheses which are not established by the empirical data but may be suggested by them. Science then proceeds by testing the observable consequences of these hypotheses, i.e. observations are directed or led by hypotheses - they are 'theor



CONTEXTUALISM/DECONTEXTUALISM

Contextualism

You hold the view that the truth of scientific knowledge and processes is interdependent with the culture in which the scientists live and in which it takes place.

Decontextualism

You hold the view that scientific knowledge is independent of its cultural location and sociological structure.



PROCESS/CONTENT

Process

You see science as a characteristic set of identifiable methods or processes. Learning about these would be viewed as an essential part of science education.

Content

You think that science is characterized by the 'facts' and ideas it has and that the essential part of science education is the acquisition and mastery of this 'body of knowledge'.

INSTRUMENTALISM/REALISM

Instrumentalism

You believe that scientific theories and ideas are fine if they work, that is they allow correct predictions to be made.

Scientific theories are 'instruments' which we can use but they say nothing about an independent reality or their own truth.



INSTRUMENTALISM/REALISM

Realism

You believe that scientific theories are statements about a world that exists in space and time independent of the scientists' perceptions. Correct theories describe things which are really there, independent of the scientists, e.g. atoms.



What next? A reminder....

- Reflect: What do different perspectives on the nature of scientific knowledge and processes suggest about the role of science in the future of cities?
- Reflect: What do different perspectives on the nature of scientific knowledge and processes suggest about the role of science in the future of cities?
- Next: Go to the discussion thread for this session and join the chat

