A Concept Map of Curiosity Literature

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Abstract. Curiosity is a commonly studied topic in psychology. I produced the following mind map to categorize and understand key contributions to curiosity literature, to inform the design of technology-enhanced learning technologies to evoke curiosity that we are presently undertaking. Just as the mind map categorizes the literature, the literature defines the shape and nature of the mind map presented here-in.

1 Curiosity as Internal State

As a result of the literature review, I identified two key aspects of curiosity that I wished to model and explore, *Internal State* and *Behaviors*. My elaboration of *Internal State* identified affective factors[10], such as novelty[2, 20] and surprisingness[2, 11], and in turn, various scaffoldings[6, 19] that may support these factors. Besides affective factors, a number of cognitive factors were identified, including uncertainty[2, 6, 11], conflict resolution[12, 17], knowledge possession[11] and knowledge comprehensibility[11, 20]. Once again, I identified a number of useful scaffoldings[4, 6, 16, 22] that may act to support these internal states.

2 Curiosity as Behaviors

While internal states help to elaborate underlying mechanisms of curiosity, I also investigated curiosity-related behaviors as a key element in identifying when curiosity occurs and as a potential means of expressing curiosity to others. I identified three key categories of behavior, *affective expression*, *exploration*[2], and *social behaviors*. Affective expressions include excitement[1, 21], confusion[7], and absorption[5, 8, 14, 21] in a task, among others. Exploration is subdivided into epistemic and exploratory behaviors. Exploratory behaviors include more interaction with the physical environment, such as motion towards or investigation of an object of interest. I identified various potentially useful scaffoldings, such as modeling[3, 9, 18] or encouraging[15] the desired behavior. Epistemic behaviors, on the other hand, involves behaviors that explore ideas including epistemic observation, epistemic thinking and consultation. These behaviors are to be best scaffolded through such means as feedback[23] and encouragement[6, 23]. Encouraging and participating in a consultative role also forms the basis of several useful scaffoldings[3, 9, 18, 21, 23]. Social behaviors include behaviors of curiosity involving multiple parties. Within a social setting, individuals play different roles[13] and desire interaction with peers[1, 21]. A few useful scaffoldings identified here include approaching a problem as a group[21] or with the assistance of a parent[21].

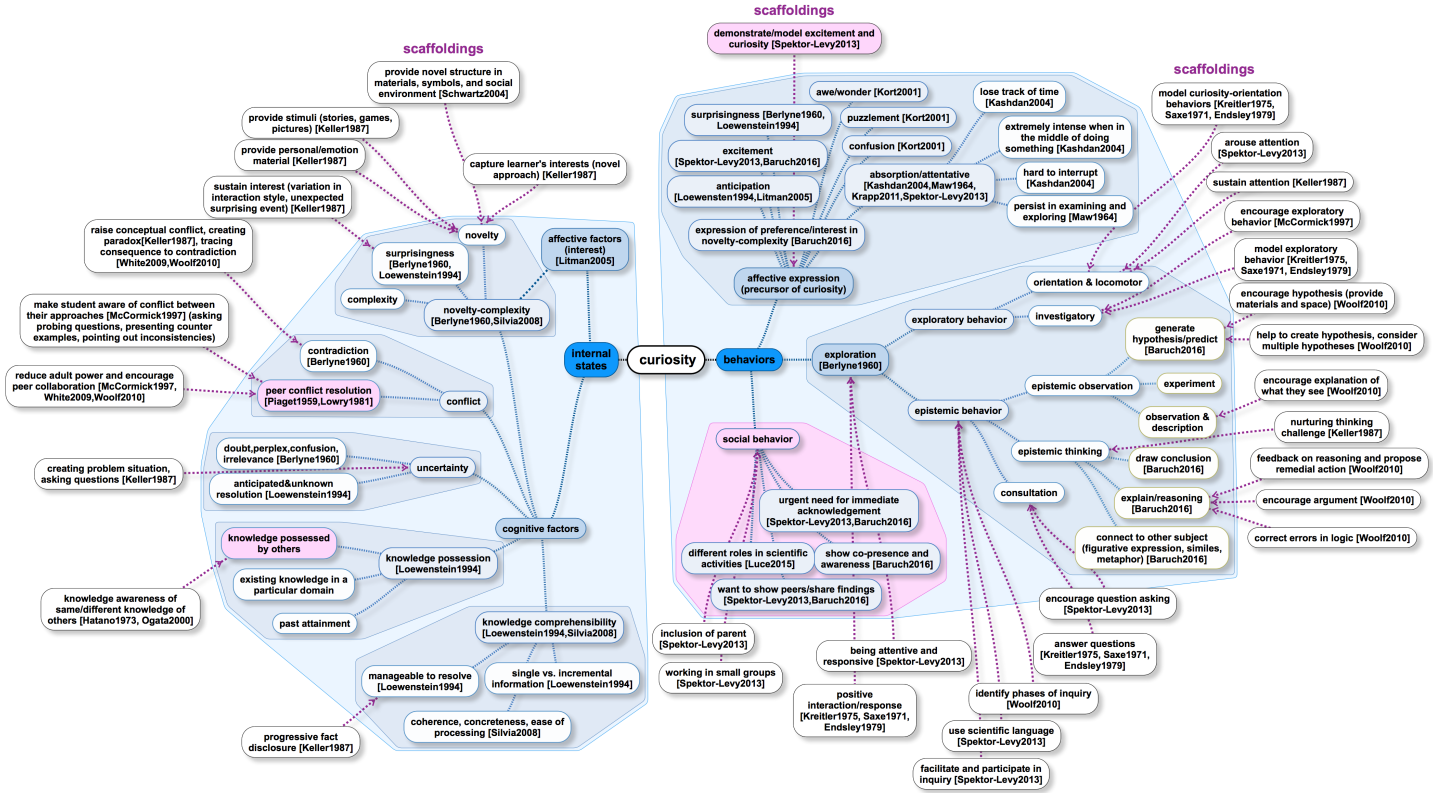

Fig. 1. A concept map of curiosity literature

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