

# 國立彰化師範大學 98 學年度碩士班招生考試試題

系所：生物學系

組別：丙

科目：生物教育

☆☆請在答案紙上作答☆☆

共 1 頁，第 1 頁

一. 解釋名詞：每題 5 分，共 30 分。

1. 鑑別度
2. 學習鷹架
3. 準實驗研究
4. 效度
5. Skinner
6. 社會學習理論

二. 問答題：共 50 分。

1. 皮亞傑的認知發展論有哪些重點？這些重點在教學上的意義為何？（15 分）
2. 某生想了解全國國中學生在遺傳學概念的學習情形。請您幫他設想要用甚麼樣的研究方法，怎麼取樣，做出來的研究結果才有代表性？（15 分）
3. 請閱讀下列研究文獻的摘要後回答文下的問題：

This study was conducted to explore the interplay between students' scientific epistemological beliefs and their perceptions of constructivist learning environments. Through analysing 1,176 Taiwanese tenth-graders' (16-year-olds) questionnaire responses, this study found that students tended to perceive that actual learning environments were less constructivist orientated than what they preferred. Students having epistemological beliefs more orientated to constructivist views of science (as opposed to empiricist views about science) tended to have a view that actual learning environments did not provide sufficient opportunities for social negotiations ( $p < 0.01$ ) and prior knowledge integration ( $p < 0.01$ ); and moreover, they show significantly stronger preferences to learn in the constructivist learning environments where they could (1) interact and negotiate meanings with others ( $p < 0.001$ ), (2) integrate their prior knowledge and experiences with newly constructed knowledge ( $p < 0.001$ ) and (3) meaningfully control their learning activities ( $p < 0.001$ ). The main thrust of the findings drawn from this study indicates that teachers need to be very aware of students' epistemological orientation towards scientific knowledge, and to complement these preferences when designing learning experiences, especially to provide constructivist-based lessons to enhance science learning for students who are epistemologically constructivist orientated.

- (1) 本文的研究方法為何？（5 分）
- (2) 本文的研究對象為何？（5 分）
- (3) 本文的重要發現為何？（10 分）

三. 教學實務題：20 分。

1-4-5-3 和 1-4-5-5 是中學的能力指標。請您選擇適合的國中自然與生活科技題材，設計出符合這兩個能力指標的教學活動設計。