

# 國立彰化師範大學 102 學年度碩士班招生考試試題

系所：生物學系

組別：丙組

科目：生物教育

☆☆請在答案紙上作答☆☆

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## 一、名詞解釋(30%)

1. Technological Pedagogical Content Knowledge (TPCK)
2. the Programme for International Student Assessment (PISA)
3. Problem-Based Learning (PBL)
4. Ground theory
5. Implicit knowledge
6. 12-year Compulsory Education
7. Action research
8. Howard Gardner's Theory of Multiple Intelligences
9. Information processing model of cognition
10. Norm-referenced test

## 二、請閱讀以下短文，並簡單敘述此文之大意。(8%)

Facebook is a popular social networking site. It, like many other new technologies, has potential for teaching and learning because of its unique built-in functions that offer pedagogical, social and technological affordances. In this study, the Facebook group was used as a learning management system (LMS) in two courses for putting up announcements, sharing resources, organizing weekly tutorials and conducting online discussions at a teacher education institute in Singapore. This study explores using the Facebook group as an LMS and the students' perceptions of using it in their courses. Results showed that students were basically satisfied with the affordances of Facebook as the fundamental functions of an LMS could be easily implemented in the Facebook group. However, using the Facebook group as an LMS has certain limitations. It did not support other format files to be uploaded directly, and the discussion was not organized in a threaded structure. Also, the students did not feel safe and comfortable as their privacy might be revealed. Constraints of using the Facebook group as an LMS, implications for practice and limitations of this study are discussed.

--文章摘要擷取自 Wang, Q., Woo, H. L., Quek, C. L., Yang, Y., & Liu, M. (2012). Using the Facebook group as a learning management system: An exploratory study. *British Journal of Educational Technology*, 43(3), 428-438.

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三、以生物遺傳概念為教學內容，回答下列問題：

1. 請敘述何謂 5E 探究式教學法？試以此概念教學內容設計 5E 探究教學課程。(12%)
2. 請簡述布魯姆新版教育目標分類 (Bloom's revised taxonomy)？試以此概念為內容，試設計出 5 題單選題考題，並將此五題考題填入布魯姆的分類表中。(此五題考題必須設計為能落入不同分類格中之考題)。(15%)

四、Zone of proximal development (ZPD) 是 Vygotsky 認知發展論中重要的主張。在實徵性研究中，常運用 scaffolding 與 reciprocal teaching 作為 ZPD 理論之重要教學策略。

1. 何謂 ZPD？(4%)
2. 請問 Vygotsky 本人曾經直接使用 Scaffolding 這個名詞做為其教學主張嗎？(1%)
3. 請舉例說明如何將 scaffolding 策略應用於教學中。(5%)
4. 請舉例說明如何將 reciprocal teaching 策略應用於教學。(5%)

五、變異數分析摘要表如下：

變異來源	SS	df	MS	F	P
A	( ① )	1	10	( ⑦ )	.170
B	70	2	( ⑤ )	7	.004
A×B	( ② )	( ③ )	25	( ⑧ )	.015
誤差	120	( ④ )	( ⑥ )		
總和	250	29			

1. 請計算出表中 ( ) 內之數值 ① ~ ⑧。(4%)
2. 若將顯著水準 ( $\alpha$ ) 訂為 0.05 時，您會如何解釋上述變異數分析摘要表的結果呢？(6%)

六、嚴謹的測驗常透過 Item Analysis 與 Test Analysis 來檢視並改善其品質。

1. 何謂 Item Analysis？主要分析哪些的內涵 (例如：分析哪些指標或係數)？(5%)
2. 何謂 Test Analysis？主要分析哪些的內涵 (例如：分析哪些指標或係數)？(5%)