

國立彰化師範大學 99 學年度博士班招生考試試題

系所：科學教育研究所

乙、丙、丁、戊組

科目：科學教育

☆☆請在答案紙上作答☆☆

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一、探究教學是當前科學教學的主流之一，請說明探究教學所依據的理論為何？此種教學法的特色為何？(20%)

二、早期的師資培育非常著重職前教師的養成，晚近則側重在職教育的重要性。請說明如果你要成立一個教師專業成長團體，提升教師的科學寫作教學知能，則請說明你會使用哪一些理論作為你的專業成長團體的依據。你的成長團體會重視哪一些議題以及如何的進行，使得你的目標(科學寫作教學知能)能達到。(20%)

三、請翻譯以下句子 (10%)

Looking at the findings from inquiry research, one wonders whether the inquiry-based skills are discipline-specific, or if they are general, developed across a range of tasks.

四、名詞解釋(請寫出以下名詞的中文翻譯以及名詞的解釋)(25%；每一小題5%):

1. problem-based learning
2. TIMSS
3. scientific representation
4. anchored instruction
5. metacognition

五、翻譯及簡答

The Social Scientific Issue (SSI) approach represents a reconstruction and evolution of the Science Technology and Society (STS) model that provides a means to not only address societal implications of science and technology, but also to tap into students' personal philosophies and belief systems. As constructivist-learning theory suggests, each student's knowledge is built as a result of the combination of all influences, be they external or internal. Where STS fails to overtly consider the epistemological foundations, moral and ethical development, and emotional aspects of learning science, SSI specifically targets these essential personal aspects of learning (Zeidler, Sadler, Simmons & Howes, 2005, p. 371).

1. 請翻譯上述文字的大意，不用逐字翻譯。(10%)
2. 除了上述文章中提到的內容以外，過去研究中曾指出 SSI 和科學學習有何關係(請具體引用研究者的姓名)。(15%)