# 國立彰化師範大學 101 學年度碩士班招生考試試題

系所： 科學教育研究所　　　　　組別： 甲組　　　　　科目： 數學教育

一、名詞解釋（請翻譯並解釋下列專有名詞，每題 5 ％，共計 20 ％）

1. constructivism

2. relational understanding

3. mathematical proficiency

4. cooperative learning

二、請寫出以下文句的大意(不需逐字翻譯)並加以詮釋 (30 ％)
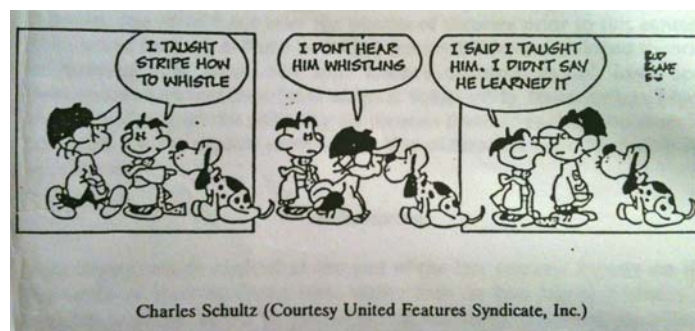
The notion of 'procept' began its life as an idea generated by looking at a symbol such as 3+2 both as a process (of addition) and a concept (of sum). It was extended to include different symbols and different processes that give rise to the same mental object in the mind of a particular individual. Thus 3+2, 4+1, 5, 7-2 can all represent the same procept, involved in composing and decomposing arithmetic processes that give 5.

The definition of "procept" is as follows:

An *elementary* procept is the amalgam of three components: a process which produces a mathematical object, and a symbol which is used to represent either process or object.
A *procept* consists of a collection of elementary procepts which have the same object.

(cited from David Tall's academic homepage: www.davidtall.com )

三、從下面這幅卡通漫畫，你對數學教育有何反思，請用一二段文字敘述出來? (20 ％)



Charles Schultz (Courtesy United Features Syndicate, Inc.)

四、學校數學課最值得學習的數學知識是什麼?列舉你覺得最有價值的前三名，並說明如此排序的理由，再從這三者之中任選其一，最後說明如何讓學生獲得它。(30 ％)