

行政院國家科學委員會補助專題研究計畫  成果報告  
 期中進度報告

【大學工程學系學生運用不同學習方法提升21世紀e化關鍵能力之研究:總

計畫(1/3)】

計畫類別： 個別型計畫  整合型計畫

計畫編號：NSC 99-2511-S-276-006-MY3

執行期間：99年8月1日至100年7月31日

計畫主持人：曾國鴻

共同主持人：戴建耘、周明

計畫參與人員：李育諭、張效齊、陳美惠

成果報告類型(依經費核定清單規定繳交)： 精簡報告  完整報告

本成果報告包括以下應繳交之附件( )：

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執行單位：美和科技大學

中 華 民 國 1 0 0 年 5 月 3 1 日

九十九年度大學工程學系學生運用不同學習方法提升 21 世紀 e 化關鍵能力之研究:總計畫(1/3)之期中進度報告 (NSC 99-2511-S-276-006-MY3)

**Project title: Cross-lagged relationships between motivation and engagement for college engineering students**

**Project Principle Investigator : Kuo-Hung Tseng**

**1. Period**

The period of study is from August, 2010 to July, 2011.

**2. Purpose**

The purpose of this study is to test the theory of SDT and to clarify the casual relationship between motivation and engagement, which has been unclear in past cross-sectional studies. In this study, data was used from technological university students who major in Electrical Engineering and Civil Engineering. A two-wave panel design was used combining data from freshmen students at the start of the course (time 1) and after two months in the course (time 2).

The cross-lagged panel analysis (e.g., Rantanen, Kinnunen, Feldt, & Pulkkinen, 2008) was used to examine the effects of Time 1 engagement on Time 2 engagement and motivation, and the effects of Time 1 motivation on Time 2 engagement and motivation (seen in figure 1).

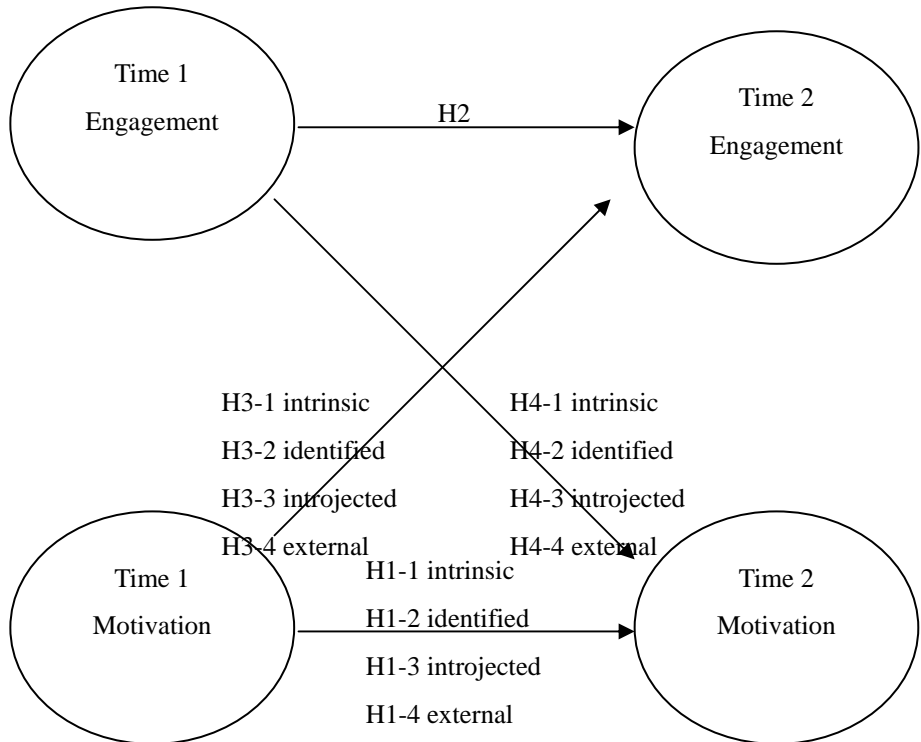


Figure 1 Hypothesized cross-lagged relationships between engagement and motivations.

**3. Method**

**3.1 Participants**

The sample was comprised of 111 students (102 males and 9 females) from two classrooms of students majoring in Electrical Engineering and Civil Engineering. There were 63 students of Electrical Engineering and 48 students of Civil Engineering. The participants came from the same technological university. Participants were all freshmen of the ages of 19 to 20. These students were measured at time 1 in the beginning of semester and at time 2 (two months after first measure).

**3.2 Measurements**

**3.2.1 Translation of Self-regulation Questionnaire and Engagement scale in Chinese**

This study used a questionnaire survey. Questionnaires were translated from English to Chinese, the participants' mother tongue( see Appendix 1 ). In line with approaches to cross-cultural

scale translation (Brislin, 1986), the translation of scales was thoroughly assessed by a committee. The committee includes researchers who participated in the back translations of original items and two other experts. A pretest was conducted with 50 college students in order to determine whether the scale was clear and formulated in a language to which college students can relate.

### 3.2.2 Instrument of motivations

The motivation used the questionnaire from Ryan and Connell (1989) for assessment. The questionnaire was initiated by asking the students, “Why are you motivated to continue your studies next year?” The motivation scale was constructed from four types of motivation: external (e.g., because others expect me to do so), introjected (e.g., because I would feel ashamed if I didn’t do so), identified (e.g., because it is personally valuable), and intrinsic (e.g., because I like to study). The scores of each type of motivation are the combination of four items.

### 3.2.3 Instrument of engagement

The measurement of engagement was assessed with 24 self-constructed items. The engagement items are supposed to reflect three underlying dimensions (Schaufeli, Salanova, Gonzales-Roma, & Bakker, 2002): Vigor (9 items; e.g., ‘When I get up in the morning, I feel like going to class/work’); Dedication (8 items; e.g., ‘I’m enthusiastic in my study/job’), and Absorption (7 items; e.g., ‘When I’m studying/working, I forget everything around me’). The total score of engagement is the combination of the scores of three subscales.

## **4. Current progress**

We just completed literature review and data collection. However, the result of data analysis had not completed yet.

## **5. Future plan**

We will continue analyzing data and then, complete final report.

## References

- Brislin, R. W. (1986). The wording and translate of research instruments. In W. Lonner and J. Berry (eds), *Field methods in cross-cultural research* (pp. 137-164). Beverly Hills, CA:Sage.
- Rantanen, J., Kinnunen, U., Feldt, T., Pulkkinen, L. (2008). Work-family conflict and psychological well-being: Stability and cross-lagged relations within one- and six-year follow-ups. *Journal of Vocational Behavior*, 1-15.
- Ryan, R. M., & Connell, J.P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, 57, 749-761.
- Schaufeli, W. B., Salanova, M., Gonza'lez-Roma', V., & Bakker, A. (2002). The measurement of burnout and engagement: A confirmatory factor analytic approach. *Journal of Happiness Studies*, 3, 71-92.

# Appendix 1

## 參與研究同意書

美和科技大學經營管理研究所

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親愛的同學，您好：

基於我們對於您個人權益的尊重，本研究對您有以下的承諾：

- ※您有權隨時停止作答，並且不會因此而受到懲罰。
- ※您有權要回您的資料，並且不會作進一步的分析。
- ※您有權在本研究結束後知道研究結果。
- ※如有任何疑問，您隨時可經由施測者所附之聯絡方式與研究人員聯絡。

本研究之結果，僅供學術使用，將不做其他用途；本研究的資料沒有對錯或好壞的判斷，您的所有資料將被匿名保密，請您放心填答，謝謝您的合作！

如您同意參與本研究，請於簽名後並寫上您的姓名，謝謝您。

本人已詳細閱讀本同意書，並同意參與研究。

參與者簽名：\_\_\_\_\_ 日期：\_\_\_\_年\_\_\_\_月\_\_\_\_日

性別：男 女 年齡\_\_\_\_\_

再次感謝您。

計畫主持人：曾國鴻講座教授

聯絡地址：屏東縣內埔鄉美和村屏光路 23 號

以下的題目是想瞭解您對 <u>學業或是學習</u> <u>上的一些看法</u>	非常 不同 意					非常 同意
1.身為一個學生，我感到自己充滿活力	1	2	3	4	5	6
2.我發現唸書對我而言目的明確，且很有意義	1	2	3	4	5	6
3.當我唸書時，時間總是過得飛快	1	2	3	4	5	6
4.唸書時，我感到自己意志堅決並且充滿活力	1	2	3	4	5	6
5.我總是熱衷於唸書	1	2	3	4	5	6
6.當我唸書時，我會忘記周圍的一切事情	1	2	3	4	5	6
7.唸書帶給我許多靈感	1	2	3	4	5	6
8.早上一起床，我就想要去唸書	1	2	3	4	5	6
9.當認真學習的時候，我會感到快樂	1	2	3	4	5	6
10.我為學習感到自豪	1	2	3	4	5	6
11.我沈浸於學習當中	1	2	3	4	5	6
12.我可以一次連續花很長時間在唸書	1	2	3	4	5	6
13.對我來說，唸書是具有挑戰性的	1	2	3	4	5	6
14.我在唸書時會達到忘我的境界	1	2	3	4	5	6
15.唸書時，即使感到精神疲勞，我也能夠很快地恢復	1	2	3	4	5	6
16.我常唸書到廢寢忘食	1	2	3	4	5	6
17.在唸書中即使遭遇困難，我也總能夠鍥而不捨	1	2	3	4	5	6

以下的題目是想要瞭解您 <u>為何會完成老</u> <u>師規定的作業?</u>	非常 不同 意					非常 同意
18.因為我想讓老師認為我是好學生	1	2	3	4	5	6
19.因為如果我不完成它，我會惹上麻煩	1	2	3	4	5	6
20.因為它很有趣	1	2	3	4	5	6
21.因為假如我不完成它，我會覺得自己很糟	1	2	3	4	5	6
22.因為我想瞭解這個科目	1	2	3	4	5	6
23.因為那是我必須要去做的	1	2	3	4	5	6
24.因為我覺得做作業是一種享受	1	2	3	4	5	6
25.因為做完作業對我而言是重要的	1	2	3	4	5	6

以下的題目是想要瞭解您 <u>為何會努力於課業?</u>	非常不同意					非常同意
26. 老師就不會罵我	1	2	3	4	5	6
27. 我想讓老師認為我是好學生	1	2	3	4	5	6
28. 因為我想學到新東西	1	2	3	4	5	6
29. 因為如果我不能學好它，我會感到羞愧	1	2	3	4	5	6
30. 因為它很有趣	1	2	3	4	5	6
31. 因為那是老師的規定	1	2	3	4	5	6
32. 因為我覺得做好課業是一種享受	1	2	3	4	5	6
33. 因為完成課業對我而言是重要的	1	2	3	4	5	6

以下的題目是想要瞭解您 <u>為何會嘗試回答課堂中困難的問題?</u>	非常不同意					非常同意
34. 因為我想讓其他同學覺得我很聰明	1	2	3	4	5	6
35. 因為如果我不嘗試回答，我會感到羞愧	1	2	3	4	5	6
36. 因為我覺得回答困難問題是一種享受	1	2	3	4	5	6
37. 因為那是我必須要去做	1	2	3	4	5	6
38. 為了知道我的回答是對的或是錯的	1	2	3	4	5	6
39. 因為回答困難問題很有趣	1	2	3	4	5	6
40. 因為回答課堂中的困難問題對我而言很重要	1	2	3	4	5	6
41. 因為我想讓老師讚美我	1	2	3	4	5	6



以下的題目是想要瞭解您 <u>為何會在學校中嘗試努力做好？</u>	非常不同意					非常同意
42. 因為那是我必須要去做的	1	2	3	4	5	6
43. 因為老師會認為我是好學生	1	2	3	4	5	6
44. 因為我覺得做好學校作業是一種享受	1	2	3	4	5	6
45. 因為如果我不盡力做好它，我會惹上麻煩。	1	2	3	4	5	6
46. 因為假如我不盡力做好它，我會覺得自己很糟	1	2	3	4	5	6
47. 因為在學校中嘗試努力表現對我而言是重要的	1	2	3	4	5	6
48. 因為假如我做得好，我將感到自豪。	1	2	3	4	5	6
49. 因為假如做得好，我可能得到獎賞。	1	2	3	4	5	6

## 問卷到此結束、感謝您的回答

Schaufeli, W. B., Salanova, M., Gonzales-Roma, V., & Bakker, A. (2002). The measurement of burnout and engagement: A confirmatory factor analytic approach. *Journal of Happiness Studies*, 3, 71-92. (學習涉入量表)

Ryan, R. M., & Connell, J.P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology*, 57, 749-761. (自我調整學習量表)