A Structural Model of Achievement Goal Orientations and Study Approaches of Hong Kong Teacher Education Students

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Introduction

Research in the area of students’ learning approaches has been conducted by numerous educators since the late 1970’s (Biggs, 1985, 1987; Entwistle & Kozeki, 1985; Marton & Saljo, 1976; Ramsden & Entwistle, 1981). Marton and Saljo (1976) have suggested two basic approaches to learning, viz., “surface” and “deep” approach. A surface approach describes the intention to reproduce information in compliance with externally imposed task demands while a deep approach involved an intention to understand. This suggestion was supported by studies of researchers, e.g. Entwistle (Entwistle, 1991; Entwistle & Kozeki, 1985) with the Approaches to Study Inventory and Biggs (1985, 1987) with the Study Process Questionnaire (abbreviated as “SPQ”) and the Learning Process Questionnaire (abbreviated as “LPQ”) developed in his survey study with Australian tertiary and high school students respectively.

Many of these studies of learning approaches were conducted with university/college students in western countries to identify what kind of study approaches were adopted and to relate the chosen study approaches with other variables such as academic achievement. Judith’s (1992) study of the learning processes in distance learning students concluded that deep motivation was a way to success, but to succeed in gaining credit and good grades, deep strategy, achieving motive and achieving strategy were also needed. This was in support of the meaning assigned by Biggs to achieving approach. Studies employing Biggs’ instruments have also been replicated in various situations and contexts. (Biggs, 1992; Watkins & Hattie, 1981, 1985; Watkins & Ismail, 1994). For example, Watkins and Hattie (1981) attempted to investigate sex, faculty and age (academic year) differences in the study of methods of students at one Australian university. The study reported that the young students, the male students, and the students enrolled in science-based faculties appeared to be most in need of study methods counseling. Ramsden and Entwistle (1981) in their study also discussed the ways which organization of teaching and courses may affect students’ approach to learning. In a comparative study of Hong Kong and Australian students, Kember and Gow-Lyn (1991) reported similar study processes tendencies toward reproductive study approach was identified in the university/college students of both culture, and this might be a function of teaching practice rather than an innate tendency.

Though the study of learning approaches adopted by teacher education students have attracted considerable attention, however, factors affecting the study approaches were also explored and investigated. One area of focus was on the achievement goal orientations. Current researchers in achievement motivation have considerably regarded achievement goal orientations to be prominent determinants of students’ motivation and achievement behaviour.
Distinctions were made between two contrasting achievement goals, namely: learning goals in which individuals tend to increase one’s mastery of new tasks and competence; and performance goals, where individuals seek to maintain positive judgment by trying to prove their competence. It has been argued by Dweck (1986) and Nicholls (1989) that a learning goal orientation is more desirable than concentrating on outperforming others (performance goal orientation). The situation of how the achievement goal orientations were related to students’ learning motive and strategies were explored by a number of empirical studies.

Nolen (1987) investigated the developmental differences in learning goals, study strategy beliefs and their inter-relationship among school graders and college students. She administered questionnaires to the students to measure the levels of task orientation (aligned with a mastery orientation), ego orientation (performance orientation), work avoidance, as well as belief in the utility of two types of strategies: those requiring deep processing of information, and those requiring only surface-level processing. Results indicated that of the three goal orientations, only task orientation was significantly positively correlated with belief in the value of deep-processing strategies. This was the case at all three age levels. Moreover, valuing of the two strategy types was positively correlated for younger, but not college students, who appeared to more clearly differentiate the two strategy types on the basis of utility for learning than did the younger groups. Therefore, the hypotheses that students' personal goals for learning influencing which strategies they used in studying were supported.

Greene and Miller (1996) studied the relationships among college students' self-reported goal orientation, perceived ability, cognitive engagement while studying, and course achievement. Results indicated that both perceived ability and learning goal scores were positively correlated with meaningful cognitive engagement which included self-regulation and deep strategy use. In addition, learning goals and perceived ability were positively correlated with each other and performance goals were positively correlated with shallow cognitive engagement. A causal model in which perceived ability and learning goals influencing meaningful cognitive engagement, which in turn influence midterm achievement was supported. Finally, shallow processing, which was influenced by performance goals, negatively influenced midterm achievement. All these studies have suggested that the more adaptive learning goal orientation is related positively to the more desirable deep approach to learning.

For the Chinese students’ achievement goal orientations researches, there were only limited findings. Kong and Hau (1995) examined how learning orientation was related to learning motive and strategies. Results indicated that the more adaptive learning goal was in fact related to the more desirable deep approach. It also showed the congruence between achievement goal orientations and approaches of studying, i.e. learning goal orientation was related to the deep approach, whereas the performance goal was associated with the surface approach.

In another study, Chow (1995) investigated the relation between achievement goal orientations and motivational factors of Physical Education student-teachers. Result indicated that learning goal and performance goal correlated with three self-reported self-regulated learning.
As teacher educators for many years, the authors are interested to understand the kind of achievement goal orientations and study approaches prevailing among prospective teachers. It is expected that the achievement goal orientations will affect the study approaches adopted by a student teacher and it possibly affects how he/she acquires and integrates knowledge and experience from the teacher education programme. In turn this will have an impact on the conception of the prospective teacher about learning, subsequently influence the way he/she teaches and his/her expectations of the pupils.

Objective of Study

The objective of this study was to investigate whether there exist a desirable structural model relating the achievement goal orientations and the study approaches adopted by the teacher education students in Hong Kong. Besides, identification of the achievement goal orientations and study strategies and motives adopted by the teacher education students would provide profiles of the achievement goal orientations and study approaches of the prospective teachers. These information would be useful to course designers and staffs of relevant departments to give appropriate assistance to student teachers in their motivational behaviour and study processes where necessary.

Method of Study

Materials

Survey method was used in this study by means of adaptation of Biggs’ questionnaire for college students: Study Process Questionnaire (SPQ) which originally consisted of 42 items with language written in both English and Chinese. However, for the present study, 28 items were adapted measuring mainly the deep approach and surface approach. Biggs’ SPQ questionnaire was used for the study because this instrument had been employed in a number of studies and claimed to have established its reliability and validity in investigating the dimensions of study approaches for both Australian and Hong Kong university/college students (Biggs, 1992). For the measurement of achievement goal orientations, the questionnaire developed by Roedel, Schraw and Plake (1994) was adapted and consisted of 12 items with language written in both English and Chinese as well.

Subjects

Purposive sampling method was used in this study. The subjects of this study consisted of 200 students of the Full-time Certificate of Education Course of the Hong Kong Institute of Education. The Certificate of Education Course was either a two year or three year full-time pre-service course for “A” level matriculates to be educated as non-graduate teachers. Although it is a sub-degree course, the student teachers could be taken as equivalent to the undergraduates of college and universities based on the “A” level entry requirement.
Like other higher institutions, the student teachers took a variety of subjects, including Arts, Science & Maths., Business, Technology, Social Studies, Cultural subjects as their electives.

**Data Analysis**

Structural equation modeling (SEM) would be utilized to test the hypothesis whether there exists desirable goodness-of-fit of the structural model relating the achievement goal orientations and the study approaches adopted by the teacher education students and also whether significant path loadings were found. This recent methodology carries much advantages over the traditional techniques. SEM can consider simultaneously and handle several dependent variables. Besides, it allows the dependent variables and independent variables to have error measurements. Also, SEM permits latent variables be constructed by several different exogenous indicators and can estimate the reliabilities and validities of the indicators. In addition, it allows cross loadings of different indicators pointing to the same latent factor. LISREL Version 8 (Joreskog & Sorbom, 1996) was employed to test the hypothesis.

**Results**

The findings are summarized by the following path diagram with statistical figures reported alongside the paths and is reported in the following page. Also, the Goodness of Fit Statistics reported by the LISREL output are summarized as follows:

**Goodness of Fit Statistics**

- Degrees of Freedom = 32
- Minimum Fit Function Chi-Square = 102.22 (P = 0.00)
- Normal Theory Weighted Least Squares Chi-Square = 91.68 (P = 0.00000011)
- Estimated Non-centrality Parameter (NCP) = 59.68
- Root Mean Square Error of Approximation (RMSEA) = 0.097
- Root Mean Square Residual (RMR) = 1.07
- Standardized RMR = 0.064

- Goodness of Fit Index (GFI) = 0.92
- Adjusted Goodness of Fit Index (AGFI) = 0.85
- Normed Fit Index (NFI) = 0.88
- Non-Normed Fit Index (NNFI) = 0.88
- Comparative Fit Index (CFI) = 0.91
- Incremental Fit Index (IFI) = 0.91
- Relative Fit Index (RFI) = 0.83
Discussion of Results

As can be observed from the diagram, the path loading coefficient from the construct of learning goal orientation pointing to the construct of deep approach was 0.88 which is highly significant. Besides, the coefficient from performance goal orientation pointing to the surface approach was 0.53 which was also significant. These figures indicated that the congruence of the learning goal associating with deep approach and the congruence of performance goal associating with surface approach were firmly established. Hence, these results once again affirmed with previous studies. Besides, the Goodness of Fit Index (GFI) was 0.92 and it suggested a desirable structural model relating the achievement goal orientations and study approaches was confirmed. Although the Root Mean Square Error of Approximation (RMSEA) = 0.097 which was less desirable, however, the Minimum Fit Function Chi-Square was 102.22 with degrees of freedom = 32 was an acceptable result which indicated a desirable structural model was found.

Conclusion

With respect to the results generated, it can be concluded that a substantial structural model relating the achievement goal orientations and study approaches adopted by the teacher education students was firmly established indicating that the congruence of achievement goals and study approaches was prominent, meaning that the more adaptive learning goal was related to the more desirable deep approach of learning. This substantiated model implicate that course and curriculum designers should be more aware to cultivate and optimize students’ learning goal orientation and deep approaches of learning when they plan and design the course and curriculum.

References


