The causal relationships between previous school performance, homework assignments and present school performance, with mediation of self-efficacy for learning and responsibility, in male and female high school students in Ahwaz

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Abstract

The main objective of the present study was to test the fitness of the suggested model, of the structural equations for the direct and indirect the causal relationships between previous school performance, homework assignments and present school performance, with mediation of self-efficacy for learning and responsibility, in high school students in Ahwaz. This project was conducted in two stages, namely the primary study and the main study. In the main study-stage, 400 high school students of Ahwaz were randomly chosen to testify the hypotheses and fitness of the proposed model. According to the results, the proposed final structural equation model of the causal relationships between the above-mentioned variables had an acceptable fitness regarding the fitness indices.

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Keywords: previous and present school performance, homework assignments, self-efficacy for learning, responsibility.

1. Introduction

What has been an integral part of education, is assignment. Assignment is one of the structural factors which is considered to be the influential factor in the cognitive-motivational processes of the students. In this perspective, the class structure, the assignment grade, and the students' response to assignment, form the central elements of scholastic learning (2005). Part of the assignment is done at school (class work) and the other part is done at home so that, besides the teachers, the students and their parents can get involved in their education. Therefore, some of the students' outside-school time is dedicated to the doing of the assignment. This kind of assignment is called homework. "What are the positive and negative effects of the assignment on the students' performance?" is a crucial question, according to which, teachers, education planners, researchers, and officials make decisions to reach the educational goals.
2. method

2-1- Review of Literature
Lots of studies about the effects of homework assignment on the school performance have been conducted. For instance, Zimmerman and Kitsantas (2005), by using structural equation analysis, to examine the relationships between previous school performance and doing homework assignment and the present school performance, with the mediation of self-efficacy for learning and conceived responsibility, realized that there is a positive and significant relationship between self-efficacy for learning and perceived responsibility. Moreover, self-efficacy for learning and perceived responsibility play an important part in this relationship. They believe that the best path for the influence of predictive variables (previous school performance and doing homework assignment) on criterion variable (present school performance) in that of self-efficacy for learning.

2-2- Hypothesis
The main Hypothesis of the present study is as follows: The suggested model for the relationships between homework assignment and previous school performance, and present school performance of the female and male high school students of Ahwaz, with the mediation of self-efficacy for learning and perceived responsibility for learning corresponds to the data.

2-3- Statistical community, sample and sampling method
Statistical community of this study was the male and female high school students of Ahwaz in 2007-2008. The sampling method in this study was multi-stage random sampling. The sampling was done twice. The first time was for the elementary study and for the purpose of confirming the validity and reliability of the tools. In the second stage the aim was to test the model and the hypothesis. The first-stage model included 130 students (65 female, 65 male). From among the 130 questionnaires which were handed out to the students, 10 questionnaires were incomplete and were omitted from the elementary sample. Thus, the number of the samples was reduced to 120 (61 female, 59 male). 400 students (200 female, 200 male) was the number of the main study sample. In this stage, from among the 400 questionnaire handed out, 18 questionnaires were unaccepted as incomplete. Therefore, in the end, the number of the main sample was reduced to 382 (199 female, 183 male).

2-4- measures
For gathering information about research variables and evaluating the hypotheses the following were used: personal information questionnaire, homework survey questionnaire, self-efficacy for learning questionnaire, and the perceived responsibility scale for learning questionnaire, The previous and present school performance

2-4-1- Personal Information Questionnaire: This questionnaire investigates information about the age, gender, grade, field, last year average, and the socio-economical status of the students under study.

2-4-2- Homework Survey Questionnaire: This is composed by Zimmerman. He has designed it for the evaluation of the quantity and the quality of homework assignments in two sections, comprising 8 questions. The quality section of the homework contains 6 questions and the quantity section includes 2 questions. These are yes-no questions. Zimmerman attested the reliability of this questionnaire via Chronbach's Alpha and reported the validity of the quality factor and the quantity factor as 0.79 and 0.64 respectively. He also reported the validity of the questionnaire as 0.75 via structure validity. In this study, the main measuring scale was changed from yes-no answering to a 5-rank ordering scale of Likert type. In this study, the questionnaire was tested by Chronbach's Alpha and the following results were obtained: the reliability of the whole questionnaire was 0.69 split half coefficient was 0.72, and its validity, evaluated by structural validity method, was 0.55.

2-4-3- self efficacy for learning questionnaire: The self-efficacy for learning scale which has been applied here is a test with 57 articles designed by Zimmerman (2005) and contains 5 sub-scales. The scale designer, has reported
.99 Chronbach’s Alpha for the whole scale. In the elementary study, the Chronbach's Alpha and split-half for the questionnaire were 0.94 & 0.91 respectively. Besides, in this level, Chronbach's Alpha coefficients for the five sub-scales of the questionnaire (reading, writing, studying, preparation for exam, and note-taking) were 0.76, 0.69, 0.82, 0.80, 0.75, respectively and via split-half they were 0.73, 0.60, 0.82, 0.78, 0.73 respectively. Zimmerman (2005) reported the reliability coefficient of this test as 0.72 (p<0.001). In the present study, in order to examine the validity of the scale, an elementary study was conducted on 130 high school students. Here, in addition to this scale, Sherer's General Self-Efficacy Scale was also applied. Correlation coefficient of these two scales was 0.91.

2-4-4- Perceived Responsibility Scale for Learning Questionnaire: This scale is provided by Zimmerman (2005) and contains 20 articles. Answering the articles of this tool is based on a 7-rank ordering scale of Likert type. The validity of this scale is tested by its designer via Chronbach's Alpha as 0.97. In the present study, by using internal consistency method, the test reliability with Chronbach's Alpha was 0.67 and by split half method, the validity coefficient 0.64 was obtained. The test reliability was reported as 0.24 (p<0.001).

2-4-5- The previous and present school performance: The total average of the last year for each student (educational year 2007-2008) was considered as the evaluation criterion for the students' previous school performance. To examine the present performance of the students their total average of the educational year 2007-2008 was used.

2-5- Data Analysis Method

The statistical methods used in this study, in the main stage, were: mean, standard deviation, covariance, multivariable regression, Sobel's test (1982), and structural equation analysis model conducted by SPSS-16 and AMOS-7 software packages.

3. results

3-1- Path analyses

By entering the data about 382 (the whole sample) students in the five variables of the study and feeding it to Amos-7 software and doing the calculations, the effects of previous school performance variables and doing homework assignment on dependent variables and also the effects of mean dependent variables on present school performance were studied. Chart 1 shows the model's path coefficients.

As can be noted in chart 1, the coefficients of three direct paths, i.e. between perceived responsibility to present school performance, between doing homework assignment to perceived responsibility for learning, and between self-efficacy for learning to perceived responsibility for learning were not significant in level 0.05 (dotted arrows in chart 1). Therefore the direct hypotheses 5, 7, 9 were not confirmed. With regard to the insignificance of the mentioned paths, in order to refine the model, these paths were omitted from the proposed model and after that the reconsidered model (chart 2) was also examined. Chart 2 shows the amount of the paths of the reconsidered model (by omitting the insignificant path).
3-2- Structural Equations Modeling

In the present study, the proposed model, in general, contains 12 variables (5 vivid variables and 7 hidden variables). Before looking into the structural coefficients, the fitness of the main model was examined. The fitness of the first model was evaluated according to the fitness criteria discussed earlier.
Surveying the fitness indices like the proportion of $x^2$ to $x^2/df$, Goodness of Fit Index (GFI). Increasing fitness index (IFI), the root mean square of error approximation (RMSEA), normalized fitness index (NFI), Tucker-Louis fitness index (TLI), Adjusted goodness of fit index (AGFI) show that the main model, enjoys a rather good fitness to the data (Table 1).

Table 1: fitness index of the main & modified model.

<table>
<thead>
<tr>
<th>RMSEA</th>
<th>NFI</th>
<th>CFI</th>
<th>TLI</th>
<th>IFI</th>
<th>AGFI</th>
<th>$x^2/df$</th>
<th>df</th>
<th>$x^2$</th>
<th>Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.037</td>
<td>0.982</td>
<td>0.994</td>
<td>0.990</td>
<td>0.994</td>
<td>0.959</td>
<td>0.976</td>
<td>1.51</td>
<td>29</td>
<td>43.91</td>
</tr>
<tr>
<td>0.034</td>
<td>0.981</td>
<td>0.994</td>
<td>0.991</td>
<td>0.994</td>
<td>0.961</td>
<td>0.977</td>
<td>1.45</td>
<td>32</td>
<td>46.44</td>
</tr>
</tbody>
</table>

Table 2 shows that by comparing the difference between the $x^2$ (that is, the $x^2$ of the main model (43.91)) minus the $x^2$ of the reconsidered model) by a change in the df (i.e., df of the main model (29) minus the df of the reconsidered model (32)) it can be realized that the amount of $x^2$ (-2.53) with the df of 3 is statistically significant and indicates a significant improvement that is the result of omitting the insignificant paths.

Table 2: comparing the main and reconsidered model of the study

<table>
<thead>
<tr>
<th>$\Delta df$</th>
<th>$\Delta x^2$</th>
<th>comparisons</th>
<th>df</th>
<th>$x^2$</th>
<th>model</th>
</tr>
</thead>
<tbody>
<tr>
<td>-3</td>
<td>-2.53</td>
<td>$M_1 - M_2$</td>
<td>29</td>
<td>43.91</td>
<td>main model</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>32</td>
<td>46.44</td>
<td>reformed model</td>
</tr>
</tbody>
</table>

In table 3 the Betas ($\beta$) and the significant level of each one of the main variable paths and their sub-scales in the main and reconsidered models are presented separately. As it can be seen in the table, the direct paths of doing homework assignment to perceived responsibility, self-efficacy for learning to perceived responsibility, and perceived responsibility to present school performance was not significant.

Table 3: Standard coefficient and their significance level in the main and the modified models.
4. Discussion

The significance of all path (except for those directed to responsibility for learning) matches the previous studies (such as, Bandura, 1986; Mone, Baker & Jeffries, 1995; Phan & Walker, 2000; Hompton, 1998; Matsui, Matsui & Ohnishi, 1990; Lent, Lopez & Bieschke, 1991; Zimmerman & Kitsantas, 2005; Bandura, 1989; Schunk. 2001; Pajares, 1999) in which the effect of previous school performance on self-efficacy for learning & on doing homework assignment and as a result, on present school performance has been affirmed. But, given the fact that in the present study, the paths directed to responsibility for learning were not confirmed, the reason might be the careless completion of the "responsibility for learning questionnaire". The about questionnaire was the last one provided for the students under study, and they had to answer it after they had answered the personal questionnaire, homework questionnaire, self-efficacy for learning questionnaire. The students' tiredness, their lack of interest and care could also be the factors affecting the insignificance of this relationship.

References