A Study On Students' Learning Motivation and Satisfaction in the Automobile Practice Curriculum

WEN-CHIN CHEN¹, RONG-JYUE FANG², CHANG-CHENG CHEN³, SHIN-YING WU⁴

¹ Graduate student, Department of Industrial Technology Education, National Kaohsiung Normal University, Taiwan
² Chair Professor, Department of Information Management, Southern Taiwan University of Technology, Taiwan
³ Professor, Department of Industrial Technology Education, National Kaohsiung Normal University, Taiwan

*195 No, Ci-JA Rd., Ci-Shan Township, Kaohsiung County, 84243 Taiwan
*wcc3759@yahoo.com.tw, rxf26@mail.stut.edu.tw, t1171@nknucc.nknu.edu.tw

Abstract: - The purpose of this research is to examine the model between learning motive and learning satisfaction of the automobile practice curriculum in the vocational high school. Moreover this research is to investigate the influence of learning motive and learning satisfaction from the practice score.

In order to get the information above, a questionnaire was adopted. It was based on 28 vocational high schools and 1600 students as total are the samples for the questionnaire. The returned questionnaires are 1500 copies and the returned rate is 90%. There are 1400 valid questionnaires and the returned rate is 85%.

SEM and SPSS are adopted to analyze this data. They are included confirmatory factor analysis and one way ANOVA. According to the report, the findings are as follows:

1. There was significant coefficient between learning motive and learning satisfaction from the automobile practice curriculum.
2. There was significant difference between the practice score and learning motive.
3. There was significant difference between the practice score and learning satisfaction.

Finally, based on the above results, this research made suggestions to educational administration, schools and teachers for further research.

Key-Words: - practice curriculum, learning motive, learning satisfaction

1 Introduction

1.1 Research background and motivation

The 21st century will be a human-resource-oriented society—a society which is more organized and knowledgeable. Only when one obtains this orientation can he/she be more competitive. Ministry of Education (of Taiwan) has announced the new curriculum of vocational high school on March 31, 2008. The new curriculum—which is based on the version of 2006 and then revised with the ideas of holistic education and school based—will be practiced after the year 2009, promoting the characteristics of vocation education. After reviewing the main ideas of vocational education reform of the advanced countries, the new curriculum establishes 15 indicators of core competency, which reinforces the pupils’ professional technical competency in order to achieve the goal of vocational education, “practical and practice.”

The fundamental education of vocational school is to facilitate pupils’ access to the professional vocational competency, train them to be equipped with basic work competency, and, in attempt to establish one’s lifelong learning, continue their further study [1]. Moreover, the primary source of the automobile production and maintenance is mainly derived from the department of automobiles of the vocational school, and thus, more importantly, pupils’ learning of the department will convey enormous impact on the quality of human resources. The practice curriculum is the core of the vocational school education, which is subject to the present industry.
Pupils’ learning motivation and learning satisfaction in the practice curriculum will significantly influence their professional skills in the future. The learning motivation and learning satisfaction, if incorporated into the practice curriculum of the department of automobiles, will develop a number of professional automobile producers and mechanists. Thus, the practice curriculum of the department of automobiles in vocation school education is, among the vocational school areas, an important issue worthy of attentive investigation.

1.2 Research objectives
The objective of the research is to investigate the relationship between learning motivation and learning satisfaction in the practice curriculum of the department of automobiles of the vocational school. The objectives demonstrate that:
(1) To explore pupils’ correlation between learning motivation and learning satisfaction in the practice curriculum of the department of automobiles of the vocational school.
(2) To explore the difference of the pupil’s score in the department of automobiles of the vocational school towards his/her learning motivation.
(3) To explore the difference of the pupil’s score in the department of automobiles of the vocational school towards his/her learning satisfaction.

1.3 Research assumption
(1) Pupil’s learning motivation and learning satisfaction in the practice curriculum are not obviously related.
(2) There is no significant difference between pupil’s scores of the practice curriculum and his/her learning motivation.
(3) There is no significant difference between pupil’s scores of the practice curriculum and his/her learning satisfaction.

1.4 Method and procedure
The method of the research is questionnaire. First, researchers collect the literature concerning learning motivation and learning satisfaction at home and abroad. Second, questionnaire is adopted to investigate pupils’ learning motivation and learning satisfaction of the Grade 11’s practice curriculum in the departments of automobiles in Taiwan. The procedures can be epitomized as below:
(1) To collect and analyze the related literature, and then, choose the topic, framework, method, and the design of plan.
(2) To review the questionnaire of the related literature, and then choose the research object for the pre-test questionnaire.
(3) To statistically analyze the pre-testing questionnaire returned, and then develop the formal version of questionnaire.
(4) To statistically analyze the questionnaire returned, and then write the research result, discovery and suggestion.

1.5 Research scope and limit
Limited by time, human resource, and capital, the research scope and limit will be epitomized as below: The research scope is divided into two:
(1) Research object
   The research aims at exploring relations between learning motivation and learning satisfaction of the vocational school pupils in the department of automobiles in Taiwan and thus, the research object is the Grade-11 pupils in departments of automobiles national wide, excluding the pupils of supplementary vocational high school and the practical skill class (PSC).
(2) Research limit
   Due to the differences of curriculum among the schools, the accuracy and conclusion of the questionnaire may be slightly influenced.

2  Literature review
2.1 The status quo of the practice curriculum of the department of automobiles
There are eight characteristics for the industrial vocational school education, in terms of the goal, curriculum, teaching material, teaching method, assessment, teachers, department, and equipment [2]:
(1) The educational goal should take social needs and personal development into concern.
(2) The curriculum core will directly reflect the technical development.
(3) The flexible teaching material is subject to the specialty of each place.
(4) The diverse teaching methods are subject to the characteristics of each school.
(5) Formative evaluation and summative evaluation are both equally important.
(6) The teachers are also the professional technician, teaching expert and the trainer.
(7) The recruitment of the department is strictly examined by human labor plan.
(8) The equipment is expensive, which becomes a highly-cost investment.
Ministry of Education (Taiwan) has announced the new curriculum of vocational high school on March 31, 2008. The new curriculum—which is based on the version of 2006 and then revised with the ideas of holistic education and school based concept—will be practiced after the year 2009, promoting the characteristics of vocation education. After reviewing the main ideas of vocational education reform of the advanced countries, the new curriculum establishes 15 indicators of core competency, which reinforces the pupils’ professional technical competency in order to achieve the goal of vocational education, “practical and practice.” The vocational school education is subject to reform by the environmental factors, such as the political, economical, social, scientific, and cultural development. The goal of the vocational school is to equip pupils’ vocational competency, vocational morality, and the ability for further study, which will aim to facilitate their career development and the fundamental skills of a technician. However, the goal of the department of automobiles is to train pupils’ skill competency on the automobile equipment, examination and maintenance [1]. In order to cope with the social needs, the current practice curriculum has reduced the practice hours from eight or nine classes to the current three or four hours. This will convey a certain influence on practice curriculum teachers’ teaching as well as pupils’ learning.

2.2 Theory and researches on learning motivation
Learning motivation is an important factor for a pupil’s learning [3]. The influence of learning motivation on learning is advocated by many theorists and researchers. Lee and Lin’s research[4], whose research object is based on the high school students, indicates that the high school students’ learning effect can be improved by the motivational regulation strategy to provide guidance and teaching. Thus, it is of prime importance to note that the learning motivation will determine whether the pupil is positive to learn or not. Moreover, if we may, in the period of schooling, make the pupils equipped with learning motivation, pupils will constantly and continuously learn and achieve the self-actualization, even though they have graduated from school. This is, as the research would note, the ultimate goal of education[5]. As for the need of job market, pupils’ learning motivation in the practice curriculum should be strong; as for the need of further study, the practice curriculum should be equally important for the professional subject examination. Based on the two aforementioned factors, pupils’ learning motivation should be strong. However, the fact is not what it seems to be. Lai[6] indicates that, in the students of post-secondary education in Kaohsiung and Pingtung areas, their learning motivation and learning strategy are relatively low and weak. Wu [7] demonstrates that students of the department of automobiles bear negative views and attitude towards the whole learning environment and hence, their learning motivation is worthy of researches. To sum up, the learning motivation in the practice curriculum of the department of automobiles in vocational schools is obvious weak. Thus, it is worthwhile to explore students’ learning behavior in the practice curriculum in order to provide a reference for the teachers of the department of automobiles in practice curriculum teaching and guidance.

2.3 Theory and researches on learning satisfaction
“Satisfaction” is an ambiguous and abstract term and it is important to note the definition of this term: According to Chang’s Dictionary of Psychology [8], “satisfaction” is: a mental status motivated by individual’s physical and mental drives, and especially when the goal is behaviorally achieved. Or, it is a mental feeling when the need and desire are fulfilled. According to Webster, it is “The act of satisfying, or the state of being satisfied; gratification of desire; contentment in possession and enjoyment; repose of mind resulting from compliance with its desires or demands” [9]. The Oxford English Dictionary [10] defines this term as “The action of gratifying (an appetite or desire) to the full, or of contenting (a person) by the complete fulfillment of a desire or supply of a want; the fact of having been gratified to the full or of having one's desire fulfilled.” Martin [11] suggests that if one’s expectation is equivalent to—or more than—the results achieved, and then he/she will feel “satisfied”; in other words, if the result fails, then he/she will feel “unsatisfied.” Moreover, this assumption is embraced by Tough [12], who argues that “satisfaction” is learner’s perception or attitude towards his/her learning. The happy feelings or positive attitude suggests “satisfaction,” while the unhappy feelings or negative attitude suggests “unsatisfaction.”
To recap the aforementioned definitions, satisfaction suggests a mental feeling and perception, and when the feeling exceeds the expectation and anticipation, it can be called “satisfaction.”
The learning satisfaction is subject to changes with the research topic, object, and related variations. Thus, the learning satisfaction of this research is primarily used to understand researchers’ perspective on the satisfaction factors and then further induces the dimensions of the learning satisfaction.

3 Method

The research aims to probe the relationship between automobiles-department students’ learning motivation and learning satisfaction. After surveying the literature at home and abroad, the research attempts to induce to formulate the theoretical framework and variations. Also, after reviewing the relevant questionnaire, the researchers designed a research tool to conduct the present investigation, called “Questionnaire for the Automobiles-Department Student’s Learning Motivation and Learning Satisfaction.” All the statistics collected and induced is offered in the conclusion and suggestion.

The research object is primarily the Grade-11 pupils in departments of automobiles national wide, excluding the pupils of supplementary vocational high school and the practical skill class (PSC). There are approximately 91 vocational schools installed with the department of automobiles in Taiwan; there are around 470 classes; there are about 17,900 students. Stratified random sampling is adopted to select the school samples: four vocational schools are sampled from the 37 schools in northern Taiwan, which occupies the 40% of the whole vocational schools; two vocational schools are sampled from the 34 schools in middle Taiwan, which occupies 17% of the whole vocational schools; one vocational school is sampled from the six schools in eastern and off-island Taiwan, which occupies 6% of the whole vocational schools. Thus, the total schools sampled are 10 schools. It was based on 1600 students as total are the samples for the questionnaire. The questionnaires returned are 1500 copies and the returned rate is 90%. Then, SPSS will be adopted to analyze the data.

Cronbach $\alpha$ coefficient is used to test the cohesion of the questionnaire, and then analyze $\alpha$ coefficient. If $\alpha$ coefficient goes higher, then it suggests that the validity of each question is higher. The result analyzed, as shown in tables 1 and 2, suggests the positive validity between learning motivation and learning satisfaction in the questionnaire.

### Table 1 Analysis of the learning motivation validity

<table>
<thead>
<tr>
<th>Factors</th>
<th>Sphere a coefficient</th>
<th>Sum a coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class values</td>
<td>0.86</td>
<td></td>
</tr>
<tr>
<td>Interests</td>
<td>0.90</td>
<td></td>
</tr>
<tr>
<td>Expectation</td>
<td>0.89</td>
<td>0.88</td>
</tr>
<tr>
<td>Self-efficacy</td>
<td>0.87</td>
<td></td>
</tr>
<tr>
<td>Test-anxiety</td>
<td>0.87</td>
<td></td>
</tr>
</tbody>
</table>

### Table 2 Analysis of the learning motivation validity

<table>
<thead>
<tr>
<th>Factors</th>
<th>Sphere a coefficient</th>
<th>Sum a coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher’s teaching</td>
<td>0.88</td>
<td></td>
</tr>
<tr>
<td>Teaching content</td>
<td>0.88</td>
<td></td>
</tr>
<tr>
<td>Peer relationship</td>
<td>0.82</td>
<td>0.95</td>
</tr>
<tr>
<td>Learning environment</td>
<td>0.81</td>
<td></td>
</tr>
<tr>
<td>Learning result</td>
<td>0.85</td>
<td></td>
</tr>
</tbody>
</table>

After the questionnaires are returned, the item of each question is put into numerical order and then analyzed as a data. Then, SEM and SPSS (12.0) are used to analyze the data.

3.1 Confirmatory factor analysis of the study modal

AMOS is used to do the confirmatory factor analysis (CFA), as shown in Fig. 3-1.
There is significant positive correlation between learning motivation and learning satisfaction ($r=0.89$); the compatibility in the structural model can be indicated as below:

1. $\chi^2$ value reaches the standard, and it is suitable with the modal.
2. SRMR value is .04, which is less than the standard .05; RMSEA value is .10, which almost reaches the .08 standard.
3. GFI value, NFI value, RFI value, IFI value, TLI value, CFI value are more than .90 standard.
4. AGFI value is .89, which is near .90 standard.
5. PGFI value, PNFI value, PCFI value are more than .50 standard.
6. $\chi^2$ degrees of freedom are 1.8, which is less than 2.0 standard.
7. The values of error variance are all positive.
8. Factor loading is more than .50 standard. As the above confirmatory factor analysis suggests, the research almost reaches the need of the study modal.

3.2 The variance analysis between students’ scores in the practice curriculum and the learning motivation

The five spheres and the structural “learning motivation” ($F=49.9; P<0.001$) reach significant difference. The five spheres of the learning motivation are “class values” ($F=27.0; P<0.001$), “interest” ($F=46.3; P<0.001$), “expectation” ($F=30.4; P<0.001$), “Self-efficacy” ($F=63.1; P<0.001$), and “test-anxiety” ($F=15.4; P<0.01$).

3.3 The variance analysis between students’ scores in the practice curriculum and the learning satisfaction

All items in the learning satisfaction do not have significant difference, except “learning environment.” The other four items are “teacher’s teaching” ($F=21.5; P<0.001$), “teaching content” ($F=27.1; P<0.001$), “peer relationship” ($F=10.4; P<0.001$), and “learning result” ($F=15.1; P<0.001$). These four items and the whole “learning satisfaction” have significant difference ($F=13.2; P<0.001$).

4. Conclusion

1. The structural equation modeling (SEM) suggests that the learning motivation in automobiles-department students’ practice curriculum is significantly related to their learning satisfaction, and the two dimensional factors reach the requirement of the questionnaire.
2. There is significant difference between practice scores and learning motivation.
3. There is significant difference between practice scores and learning satisfaction, except for the factor of learning environment.

The research is primarily limited in the practice curriculum and thus, the future researchers can discuss the related topic by incorporating the professional subjects. After the new version of curriculum guideline of the vocational school in 2010 is practiced, the future researchers can trace and explore whether the modification of curriculum guideline will convey any impact on the students’ learning. This may provide a reference for the administrators in Ministry of Education.

Reference:

[1] Ministry of Education, The standard of curriculum and equipment in technological and
vocational school, 1998, Technological and Vocational Education.


