Appendix
Appendix 1

Questionnaire for determining the relation between learning style with demographic factors and socio-economic factors of high school students in Songkhla province

Explanation Questionnaires have two parts.

Part 1 Status of students

Part 2 Learning styles of students.

- Style 1 Independent
- Style 2 Avoidance
- Style 3 Collaborative
- Style 4 Dependent
- Style 5 Competitive
- Style 6 Participant

Please make symbol / in O corresponding to your behaviour for study.

Part 1 Status of student

1) Sex
   - Male
   - Female

2) Grade
   - Grade 4
   - Grade 5
   - Grade 6

3) Program
   - Science - Mathematics
   - English - Mathematics
   - English - French
   - General

4) Grade Point Average (G.P.A.) from Grade 4 to present
   - More than or equal 3.00
   - From 2.26 to 2.99
   - Less than 2.26

5) Size of school
   - Large school population (number of student >= 2,500)
   - Medium-large school (number of student from 1,500 - 2,499)
   - Average school (number of student from 500 - 1,499)
   - Small school (number of student < 500)

6) Father’s Occupation
   - Agriculture
   - Labour
   - Commerce
   - State-owned Enterprises(SOEa)
   - Official
   - Other

.................................
7) Mother’s Occupation
   ① Agriculture
   ② Labour
   ③ commerce
   ④ State-owned Enterprises (SOFs)
   ⑤ official
   ⑥ Other

8) Father and mother’s income per month
   ① Less than 10,000 Baht
   ② From 10,000 - 29,000 Baht
   ③ From 30,000 - 49,000 Baht
   ④ More or equal 50,000 Baht

9) Number of brothers and sisters.
   ① 1 Person
   ② 2 Person
   ③ More or equal 3 Person

Part 2 Behaviour of student in studying
   ① Always
   ② Often
   ③ Moderate
   ④ Sometime
   ⑤ Never

<table>
<thead>
<tr>
<th></th>
<th>①</th>
<th>②</th>
<th>③</th>
<th>④</th>
<th>⑤</th>
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<tbody>
<tr>
<td>1. I am confident that I can learn every subject.</td>
<td></td>
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<td>2. I feel bored during classroom activities.</td>
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<td>3. I prefer group rather than individual activities.</td>
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<td>4. The text books are enough for my learning.</td>
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<td>5. I am very glad when I score better than others.</td>
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<td>13. I can decide which topic is important.</td>
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<td>14. I never give any attention to some subjects.</td>
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<tr>
<td>16. I prefer exams that come from the textbook.</td>
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<tr>
<td>Statement</td>
<td>Score</td>
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<td>---------------------------------------------------------------------------</td>
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<tr>
<td>17. I have to compete to achieve my score.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>18. I don't like to be absent from class &amp; miss work.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>19. I choose to learn only more interesting topics.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>20. I don't like the teacher asking me questions.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>21. I prefer discussing topics outside the classroom.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>22. I ask the teacher before doing any activities.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>23. I need to show everybody my best score.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>24. I do my best in all activities.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>25. I always work by myself before class.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>26. The subjects we learn are not useful in practice.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>27. I prefer teachers who encourage students.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>28. I don't like activities not covered in text books.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>29. I try to do activities rapidly and finish first.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>30. When I get the schoolwork I do it immediately.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>31. I always seek for other knowledge by myself.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>32. I attend classes only because of duty.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<tr>
<td>33. My friend's help me understand my work better.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<td>34. The teacher is the best person to plan things.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<td>35. I must compete for the teacher's attention.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<td>36. Classroom activities are very interesting.</td>
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<td>37. I know best what I should do in every subject.</td>
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<td>38. Answering questions, I avoid the teacher's eyes.</td>
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<td>39. I try to achieve the best teamwork outcomes.</td>
<td>☐ ☐ ☐ ☐ ☐</td>
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<td>40. Teachers shouldn't encourage students opinions.</td>
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<td>41. I like to help other students without reward.</td>
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<td>42. I try to the best of my ability in every subject.</td>
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</table>
### Appendix 2

The validation of the questionnaire among the students is shown in the reliability analysis.

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<tr>
<th>Questionnaire Item</th>
<th>Initial Alpha</th>
<th>Omitted Items</th>
<th>Final Alpha</th>
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<tbody>
<tr>
<td>18. I don't like to be absent from class &amp; miss work.</td>
<td>.6882</td>
<td>.6813</td>
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<tr>
<td>21. I prefer discussing topics outside the classroom.</td>
<td>.6885</td>
<td>.7008</td>
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<td>22. I ask the teacher before doing any activities.</td>
<td>.6925</td>
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<td>29. I try to do activities rapidly and finish first.</td>
<td>.6913</td>
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<td>30. When I get the schoolwork, I do it immediately.</td>
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<td>.6956</td>
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<td>31. I always seek for other knowledge by myself.</td>
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<td>32. I attend classes only because of duty.</td>
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<td>33. My friends help me understand my work better.</td>
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<td>42. I try to do the best of my ability in every subject.</td>
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<td>1. I am confident that I can learn every subject.</td>
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<td>5. I prefer group work rather than individual activities.</td>
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<td>10. I am very glad when I score better than others.</td>
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<td>10. I try to do every assignment.</td>
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<td>.7207</td>
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<td>11. I try to solve problems at the first attempt.</td>
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<td>35. I must compete for the teacher's attention.</td>
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<td>41. I like to help other students without reward.</td>
<td>.6609</td>
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<tr>
<td>2. I feel bored during classroom activities.</td>
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<td>8. I rejoice when the lesson is cancelled.</td>
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<td>20. I don't like the teacher asking me questions.</td>
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<td>23. I need to show everybody my best score.</td>
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<td>16. I prefer exams that come from the textbook.</td>
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<tr>
<td>28. The teacher is the best person to plan things.</td>
<td>.5284</td>
<td>.5284</td>
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</tbody>
</table>
Appendix 3

% Matlab program for summary data
% Program to create Figure 3.2%

getfile student
y=getnum;
y(:,7)=min(5,y(:,7));
x(:,8)=min(5,y(:,8));
patnum(y)
describe hist=1 typ=2 fnwid=20 focr=10

% Program to create Figure 3.3%

getfile behave

describe hist=1 col=[2:43] typ=2 fnwid=18 focr=6

% Program to create Figure 3.4%

getfile new_fac
y=getnum;
y(:,6)=min(5,y(:,6));
y(:,7)=min(5,y(:,7));
patnum(y)
%setate 'col=10:14' lin=1 cor=1 font=8 size=9

% Program association between determinants and outcomes Table 3.5%

getfile new_fac
y=getnum;
y(:,6)=min(5,y(:,6));
y(:,7)=min(5,y(:,7));
patnum(y)
setvar y=10 x=1
compar typ=2 test=1 font=10
setvar y=10 x=2
compar typ=2 test=1 font=10
setvar y=10 x=3
compar typ=2 test=1 font=10
setvar y=10 x=4
compar typ=2 test=1 font=10
setvar y=10 x=5
compar typ=2 test=1 font=10
setvar y=10 x=6
compar typ=2 test=1 font=10
setvar y=10 x=7
compar typ=2 test=1 font=10
setvar y=10 x=8
compar typ=2 test=1 font=10
setvar y=10 x=9
compar typ=2 test=1 font=10
```plaintext
compar typ=2 test=1 font=10
setvar y=13 x=7
compar typ=2 test=1 font=10
setvar y=13 x=8
compar typ=2 test=1 font=10
setvar y=13 x=9
compar typ=2 test=1 font=10
setvar y=14 x=1
compar typ=2 test=1 font=10
setvar y=14 x=2
compar typ=2 test=1 font=10
setvar y=14 x=3
compar typ=2 test=1 font=10
setvar y=14 x=4
compar typ=2 test=1 font=10
setvar y=14 x=5
compar typ=2 test=1 font=10
setvar y=14 x=6
compar typ=2 test=1 font=10
setvar y=14 x=7
compar typ=2 test=1 font=10
setvar y=14 x=8
compar typ=2 test=1 font=10
setvar y=14 x=9
compar typ=2 test=1 font=10

% Program association between determinants adjusted for most significant covariate and outcomes Table 3.6%

gflicic new_fac y= getnum:
y(-6)= min(5, y(-5));
y(-7)= min(5, y(-7));
putnum(y)
setvar y=14 x=[1 5]
compar typ=2 test=1 font=10
setvar y=14 x=[2 5]
compar typ=2 test=1 font=10
setvar y=14 x=[3 5]
compar typ=2 test=1 font=10
setvar y=14 x=[4 5]
compar typ=2 test=1 font=10
setvar y=14 x=[5 5]
compar typ=2 test=1 font=10
setvar y=14 x=[6 5]
compar typ=2 test=1 font=10
setvar y=14 x=[7 5]
compar typ=2 test=1 font=10
setvar y=14 x=[8 5]
compar typ=2 test=1 font=10
setvar y=14 x=[9 5]
```

setvar y=11 x=[8 2]
compar typ=2 test=1 font=10
setvar y=11 x=[9 2]
compar typ=2 test=1 font=10
setvar y=10 x=[1 3]
compar typ=2 test=1 font=10
setvar y=10 x=[2 3]
compar typ=2 test=1 font=10
setvar y=10 x=[4 2]
compar typ=2 test=1 font=10
sevar y=10 x=[5 3]
compar typ=2 test=1 font=10
setvar y=10 x=[6 3]
compar typ=2 test=1 font=10
setvar y=16 x=[7 3]
compar typ=2 test=1 font=10
setvar y=10 x=[8 3]
compar typ=2 test=1 font=10
setvar y=10 x=[9 3]
compar typ=2 test=1 font=10

% Program to create Figure 4.4, 4.5%
% Regression analysis for collaborative learning style

y=gamma;
y(1,0)=min(3,y(1,0));
y(1,7)=min(5,y(1,7));
putnum(y)
setvar y=10 x=[1.5]
adjust font=9
setvar y=10 x=[1.3 5.9]
adjust font=9
setvar y=10 x=[2.7 5.9]
adjust font=9
setvar y=10 x=[3.5 9]
adjust font=9
setvar y=10 x=[3.5 7.9]
adjust font=9
setvar y=10 x=[3.5 8.9]
adjust font=9
setvar y=15 x=[3.5 9]
adjust font=9
setvar y=10 x=[3 9]
adjust font=9
setvar y=10 x=9
adjust font=9 show=1
Program to create Figure 4.6, 4.7%
regression analysis for like to learn learning style

getfile new_fac
y=facnum:
y(i,:)=min(pi,y(i,:));
y(r,:)=max(pi,y(r,:));
plot(y)

setvar y=11 x=[1:9]
adjust show=1 font=6
setvar y=11 x=[1:5 7:9]
adjust show=1 font=9
setvar y=11 x=[1:2 4:5 7:9]
adjust show=1 font=9
setvar y=11 x=[1:2 4:5 7:9]
adjust show=1 font=9
setvar y=11 x=[2 4 7 9]
adjust show=1 font=9
setvar y=11 x=[2 4 7 9]
adjust show=1 font=9
setvar y=11 x=[2 4 7]
adjust show=1 font=9
setvar y=11 x=[2 4]
adjust show=1 font=9
setvar y=11 x=2
adjust show=1 font=9

Program to create Figure 4.8, 4.9%
regression analysis for independent learning style

setvar y=12 x=[1:9]
adjust show=1 font=8
setvar y=12 x=[1:5 8:9]
adjust show=1 font=9
setvar y=12 x=[1:5 8:9]
adjust show=1 font=9
setvar y=12 x=[2:5 8:9]
adjust show=1 font=9
setvar y=12 x=[2:5 8:9]
adjust show=1 font=9
setvar y=12 x=[2:4 5 8:9]
adjust show=1 font=9
setvar y=12 x=[2:4 5 8:9]
adjust show=1 font=9
setvar y=12 x=[4 8]
adjust show=1 font=9
setvar y=12 x=4
adjust show=1 font=9
Program to create Figure 4.10, 4.11%
regression analysis for hate to learn learning style
setvar y=13 x=[1:9]
  adjust show=1 font=8
setvar y=13 x=[1:8]
  adjust show=1 font=9
setvar y=13 x=[1 3:8]
  adjust show=1 font=9
setvar y=13 x=[3:8]
  adjust show=1 font=9
setvar y=13 x=[3:4 6:8]
  adjust move=1 font=9
setvar y=13 x=[3:4 6 8]
  adjust show=1 font=9
setvar y=13 x=[3:4 6:6]
  adjust show=1 font=9
setvar y=13 x=[3:4]
  adjust show=1 font=9

Program to create Figure 4.12, 4.13, 4.14%
regression analysis for not creative learning style
setvar y=14 x=[1:9]
  adjust show=1 font=8
setvar y=14 x=[1:8]
  adjust show=1 font=9
setvar y=14 x=[2:5 7:8]
  adjust show=1 font=9
setvar y=14 x=[1 3:5 7:8]
  adjust show=1 font=9
setvar y=14 x=[1 3:5 7:8]
  adjust show=1 font=9
setvar y=14 x=[1 3:5 7:8]
  adjust show=1 font=9
setvar y=14 x=[5 7:8]
  adjust show=1 font=9
setvar y=14 x=[3 5 8]
  adjust show=1 font=8
setvar y=14 x=[5 8]
  adjust show=1 font=8
setvar y=14 x=3
  adjust show=1 font=9