Learner Analysis: What, When & How

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Cooperaters

Jing, Li (2012). A Study on Learner Analysis--Take Primary School English as an example (Master Degree Thesis)

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李静．学习者分析研究—以小学英语为例[D]．北京师范大学，2012．
陈智敏．学习者分析模板的编制—以小学英语为例[D]．北京师范大学，2014．
Research Background

- To track the development of each stage in this model and combine the study with subject classroom instruction.


Situation in the mainland China:

- It is educational technology professionals who get hold of the theories and methods of Instructional Design rather than subject teachers.

  - To help teachers prepare their teaching plan according to this model
  - To track the development of each stage in this model and combine the study with subject classroom instruction
Contents

1. What: Framework of Learners’ Characteristics
2. When: Learner Analysis at Different Levels
3. How: Work Flow of Learner Analysis
What: Framework of Learners’ Characteristics
The Process of Building the Framework of Learners’ Characteristics

Determine the classification dimensions of learners’ characteristics

✓ To cover all the characteristics
Determine the Classification Dimensions of Learners’ Characteristics

Learning Motivation: the start point and reason for learning

Learning Foundations: the essential condition for learning

Learning Style: learners’ preference

Learning Motivation

Learning Motivation: the start point and reason for learning

Learning Foundations: the essential condition for learning
The Classification Dimensions of Learners’ Characteristics

Three dimensions for Learner Analysis

1. Learning Motivation
2. Learning Foundations
3. Learning Style
The Process of Building the Framework of Learners’ Characteristics

Determine the classification dimension of learners’ characteristics
- To cover all the characteristics

Identify the subclasses of each dimension
- To decompose each dimension in order to find specific characteristics
- Literature research method
Identify the Subclasses of Each Dimension Based on Existing Framework

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Framework of Learners’ Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Abroad</strong></td>
<td></td>
</tr>
<tr>
<td>R. M. Gagne (1992)</td>
<td>The nature of learner qualities, qualities that are learned, abilities and traits</td>
</tr>
<tr>
<td>P. L. Smith &amp; T. J. Regan (2008)</td>
<td>Stable similarities among learners, Stable differences among learners, changing differences between learners, changing similarities between learners</td>
</tr>
<tr>
<td>Dick, W &amp; Carey, L (2007)</td>
<td>entry behaviors, prior knowledge of topic area, attitudes towards content and potential delivery system, academic motivation (ARCS), educational and ability levels, general learning preferences, attitudes towards training organization, group characteristics</td>
</tr>
<tr>
<td>J. E. Kemp (1985)</td>
<td>academic information, personal and social characteristics, Learning styles</td>
</tr>
<tr>
<td>The American Psychological Association</td>
<td>cognitive and metacognitive, motivational and affective, developmental and social, and individual difference factors</td>
</tr>
<tr>
<td><strong>China</strong></td>
<td></td>
</tr>
<tr>
<td>Jiyun Zeng (2006)</td>
<td>basis system, motivation system, operation system, orientation system</td>
</tr>
<tr>
<td>Long Li (2010)</td>
<td>general characteristics, entry skills, information literacy</td>
</tr>
<tr>
<td>Kaicheng Yang (2004)</td>
<td>Learning style, intelligence level, locus of control, anxiety level, learning speed, entry skills, aptitude, locus of emotion, learning motivation, basic conception, the character of attitude, the character of emotion, the character of volition</td>
</tr>
<tr>
<td>Guodong Hua (2009)</td>
<td>inter-individual difference and intra-individual difference</td>
</tr>
<tr>
<td>Longsheng Chen (2009)</td>
<td>Start point of learning, learning state, learning result</td>
</tr>
<tr>
<td>Kai Din (2009)</td>
<td>The pre-teaching condition of each student, the potential condition of each student, the condition of difference of students in groups</td>
</tr>
</tbody>
</table>

Reexamine each framework of Learners’ Characteristics according to the dimensions, justify the rationality of each element.

Including all the characteristics affecting not only at lesson level but also unit and course level.
## Identifying the Subclasses of Each Dimension

<table>
<thead>
<tr>
<th>Classification Dimensions</th>
<th>Subclasses of Each Dimension</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Motivation</td>
<td>Expectation</td>
</tr>
<tr>
<td></td>
<td>Values</td>
</tr>
<tr>
<td></td>
<td>Emotion</td>
</tr>
<tr>
<td>Learning Foundations</td>
<td>Social Foundations</td>
</tr>
<tr>
<td></td>
<td>Physical and Mental Foundations</td>
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<tr>
<td></td>
<td>Entry skills</td>
</tr>
<tr>
<td>Learning Style</td>
<td>Physiological factors</td>
</tr>
<tr>
<td></td>
<td>Psychological factors</td>
</tr>
<tr>
<td></td>
<td>Social factors</td>
</tr>
<tr>
<td>Author</td>
<td>Year</td>
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<tr>
<td>----------------------</td>
<td>------</td>
</tr>
<tr>
<td>邵瑞珍</td>
<td>1990</td>
</tr>
<tr>
<td>林崇德</td>
<td>1992</td>
</tr>
<tr>
<td>王丽娟，张亿钧，李少斌</td>
<td>2003</td>
</tr>
<tr>
<td>Heinich，R</td>
<td>2004</td>
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<tr>
<td>陈晓慧</td>
<td>2005</td>
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<td>谢利民</td>
<td>2005</td>
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<td>Ormrod，J．E</td>
<td>2005</td>
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<tr>
<td>郭成</td>
<td>2006</td>
</tr>
<tr>
<td>Dick，W</td>
<td>2007</td>
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</tbody>
</table>
Identify the Detailed Characteristics of the Learner

<table>
<thead>
<tr>
<th>Classification Dimensions</th>
<th>Subclasses</th>
<th>Detailed Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Motivation</td>
<td>Expectation</td>
<td>learning goal and aspiration</td>
</tr>
<tr>
<td></td>
<td></td>
<td>self-efficacy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>attribution</td>
</tr>
<tr>
<td></td>
<td>Values</td>
<td>interest</td>
</tr>
<tr>
<td></td>
<td></td>
<td>achievement motive</td>
</tr>
<tr>
<td></td>
<td>Emotion</td>
<td>attitude towards the teacher and learning activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>personality and temperament</td>
</tr>
<tr>
<td></td>
<td></td>
<td>anxiety</td>
</tr>
<tr>
<td>Learning Foundations</td>
<td>Social Foundations</td>
<td>economical, cultural and social background</td>
</tr>
<tr>
<td></td>
<td></td>
<td>family information</td>
</tr>
<tr>
<td></td>
<td></td>
<td>life experience</td>
</tr>
<tr>
<td></td>
<td>Physical and Mental</td>
<td>gender</td>
</tr>
<tr>
<td></td>
<td>Foundations</td>
<td>age characteristics</td>
</tr>
<tr>
<td></td>
<td></td>
<td>special psychosomatic condition</td>
</tr>
<tr>
<td></td>
<td>Entry skills</td>
<td>entry skills</td>
</tr>
<tr>
<td></td>
<td></td>
<td>general ability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>multi-intelligence</td>
</tr>
<tr>
<td></td>
<td></td>
<td>learning habit</td>
</tr>
<tr>
<td>Learning Style</td>
<td>Physiological factors</td>
<td>learning environment preference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>optical time preference</td>
</tr>
<tr>
<td></td>
<td></td>
<td>sensory perception preference</td>
</tr>
<tr>
<td></td>
<td>Psychological factors</td>
<td>learning strategy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cognitive style</td>
</tr>
<tr>
<td></td>
<td>Social factors</td>
<td>be independent or with others for learning</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a sense of competition and cooperation</td>
</tr>
</tbody>
</table>

- Questionnaire and interview
- Literature research methods
The Process of Building the Framework of Learners’ Characteristics

Determine the classification dimension of learners’ characteristics
✓ To cover all the characteristics

Identify the subclasses of each dimension
✓ To decompose each dimension in order to find specific characteristics
✓ Literature research method

Determine the framework of learners’ characteristics
✓ Questionnaire and interview
✓ Literature research method
✓ Build the framework according to “Similarity / Individuality” and “Need to be Adapted/ Can Intervene”
Determine the Final Framework of Learners’ Characteristics

- **Need to Be Adapted & Can Intervene**
  - Adapted: Stable physiological and environmental factors to which teaching need to be adapted
  - Intervene: changeable psychological and emotional factors and characteristics influenced by learning process and result, with which teaching can intervene
  - Adapted & Intervene: some positive changes can happen after a long-term instructional intervention, to which teaching need to be first adapted and then lead to change bit by bit

- **Analyze again**

- **Similarity & Individuality**
  - Similarity: characteristics learners have in common.
  - Individuality: differences among learners
## The Final Framework of Learners’ Characteristics

<table>
<thead>
<tr>
<th>Similarity</th>
<th>Teaching need to be adapted</th>
<th>Teaching can intervene</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>age characteristics, gender</td>
<td>attitude to the teacher and learning activities of the whole class</td>
</tr>
<tr>
<td></td>
<td>entry skills of the whole class</td>
<td></td>
</tr>
<tr>
<td>Individuality</td>
<td>family information</td>
<td>attitude towards the teacher and learning activities for individual</td>
</tr>
<tr>
<td></td>
<td>economical, cultural and social background</td>
<td>Learning goal and aspiration</td>
</tr>
<tr>
<td></td>
<td>life experience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>cognitive style</td>
<td>Self-efficacy</td>
</tr>
<tr>
<td></td>
<td>sensory perception preference</td>
<td>attribution</td>
</tr>
<tr>
<td></td>
<td>Optical time preference</td>
<td>personality</td>
</tr>
<tr>
<td></td>
<td>Learning environment preference</td>
<td>A sense of competition and cooperation</td>
</tr>
<tr>
<td></td>
<td>temperament</td>
<td></td>
</tr>
<tr>
<td></td>
<td>special psychosomatic condition</td>
<td></td>
</tr>
<tr>
<td></td>
<td>entry skills, interest, learning habit, anxiety, learning strategy, multi-intelligence, general ability of individual</td>
<td></td>
</tr>
</tbody>
</table>
When: Learner Analysis at Different Levels
### Learner Analysis at Different Levels

<table>
<thead>
<tr>
<th>Different Levels</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course</td>
<td>achievement motive, attitude to the teacher and learning activities, age characteristics (stages of cognitive development), multi-intelligence, cognitive style, goal and aspiration for learning, self-efficacy, attribution, personality and disposition, anxiety, economical, cultural and social background, family information, gender, special psychosomatic condition, learning habit, optical time preference, sensory perception preference, a sense of competition and cooperation</td>
</tr>
<tr>
<td>Unit</td>
<td>entry skills, life experience, learning strategy</td>
</tr>
<tr>
<td>Lesson</td>
<td>interest, entry skills, general ability, learning environment preference</td>
</tr>
</tbody>
</table>

- Similar and/or stable characteristics of the learner should be analyzed at Course Level
- Unit entry ability and unit topic related experience should be analyzed at Unit Level
- Unstable individual learners’ differences should be analyzed at Lesson Level
3
How: Flow of Analysis at Different Levels
Course Level: Learner Analysis Process Design

**Course Level: Task-based**

**Task Analysis**

<table>
<thead>
<tr>
<th>Goal</th>
<th>Learning content</th>
<th>Discipline characteristics</th>
</tr>
</thead>
</table>

**Identify learners’ characteristics**
- Entry Skills
- Learning habit
- Age characteristics
- Cognitive style

**Course Level: Problem-based**

**Identify students’ problem**
- Students’ problem
- Students’ gap
- Potentials

**Forecast possible causes**
- Forecast causes
- Predict development direction

**Select tools and methods**

**Similarities**
- Document research
- Interviews with relevant teachers and students

**Differences**
- Measure by related scale
- Interview with relevant teachers and students
- Home visit
- Quizzes, ......

**Result analysis**

- What prerequisites do students master?
- How about the learners’ age characteristics?
- In terms of the specific class, are there any special situation?
- Do students like this course?
- What kind of problems are students facing with?
- ......

**Take measures and strategies**

- Measures in terms of students
- Measures in terms of teachers
- Strategies in terms of teaching

**Archive and complete teaching plan**
Unit Level: Learner Analysis Process Design

### Unit Level: Task-based

#### Task Analysis

- **Unit objectives**
- **Unit content**
- Relationship between units

#### Identify learners' characteristics

- **Unit entry skills**
- Learning strategy
- Unit topic related experience

#### Select tools and methods

- Unit entry skills
  - Test
  - Review previous achievements
  - Interview
- Learning Strategy
  - Interview before class
  - Questionnaire
  - Quizzes
- Unit topic related experience
  - Interview
  - Observation
  - Questionnaire

#### Result analysis

- How about student’s prerequisites for the unit?
- How about their target skills?
- Are students interested in the unit content?
- Do the students feel comfortable with the arrangement of unit content and activities on the basis of their existing cognitive development level?

### Unit Level: Problem-based

#### Refine students' problem

- Students' problems at unit level
- Potentials related to unit content

#### Forecast possible causes

- Refine reasons
- Exploit potentials

#### Take measures and strategies

- Measures in terms of students
- Measures in terms of teachers
- Strategies in terms of teaching

#### Archive and complete teaching plan
Lesson Level: Learner Analysis Process Design

**Lesson Level: Task-based**

**Task Analysis**
- Objectives
- Content
- Teaching Focus

**Identify learners’ characteristics**
- Entry skills
- Life experience
- Interest
- Preference for environment

**Lesson Level: Problem-based**

**Concrete students’ problems**
- The concrete manifestation of students’ problems
- Available potentials

**Forecast possible causes**
- Refine reasons
- Provide opportunities for their performance

**Select tools and methods**
- Entry skills
  - Test
  - Review of previous achievements
  - Interview
- Life experience
  - Interview before class
  - Questionnaire
  - Quizzes
- Interest
  - Observe, interview
  - Questionnaire
- Preference for environment
  - Observe
  - Questionnaire
  - Measure by scale related

**Result analysis**
- What’s the difference of students’ entry skills?
- What kinds of activities do students prefer to?
- Do they have relevant life experiences?
- In which stages of the whole class do students prefer to express themselves?

**Take measures and strategies**
- Measures in terms of students
- Measures in terms of teachers
- Strategies in terms of teaching

**Archive and complete teaching plan**
Discuss & Future Research

- Not all the elements are equally important in terms of different subjects
- Not all the subject teachers are equally capable of mastering instructional design

- The research results of Learners’ analysis still need to be applied into different subjects
- Electronic Performance Support Systems should be developed for teachers
- Delphi Approach: to confirm the framework of learner analysis; different levels of learners’ characteristics
- Design-base approach: to polish the workflow of learner analysis at different levels
- ....
Contents

1. What: Framework of Learners’ Characteristics
2. When: Learner Analysis at Different Levels
3. How: Work Flow of Learner Analysis
References

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Thank you