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# 基于标准的教师教育技术培训项目开发与实施的中国经验

# Preparing Teachers to Meet the Challenge of e-Education: Best Practices from China in Developing and Implementing Standard-Based Trainings on Educational Technology


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**Keynote at "The First Asia-Pacific Ministerial Forum on ICT in Education "**

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# Outline

- The status of developing e-Education in China
- Capacity building as a new demand
- The development of teacher’ s educational technology standards
- The development of standard-based training courses
- Implementing nationwide teacher training and testing
- Reflections

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# A conceptualization of e-Education

The concept of e-education（“教育信息化” in Chinese）represents a vision that using ICTs in aspects of education become a common practice for enabling a better education.

- A learning perspective of e-education:
  - Learning about ICT
  - Learning with ICT
  - Learning through ICT (e-Learning))
  - Learning in ICT (cyberspace, virtual world )?

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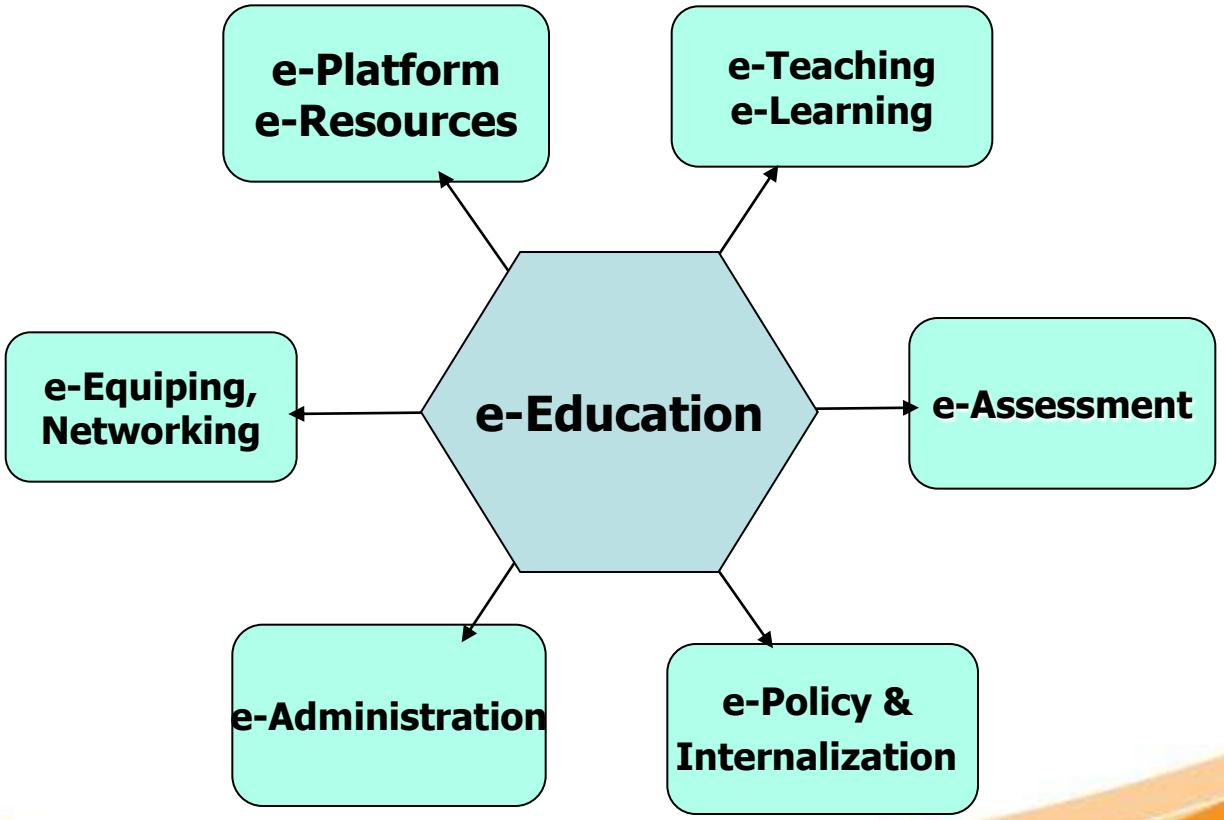
# Dimensions of e-Education



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# The background of e-Education in the section of primary and secondary schools in China

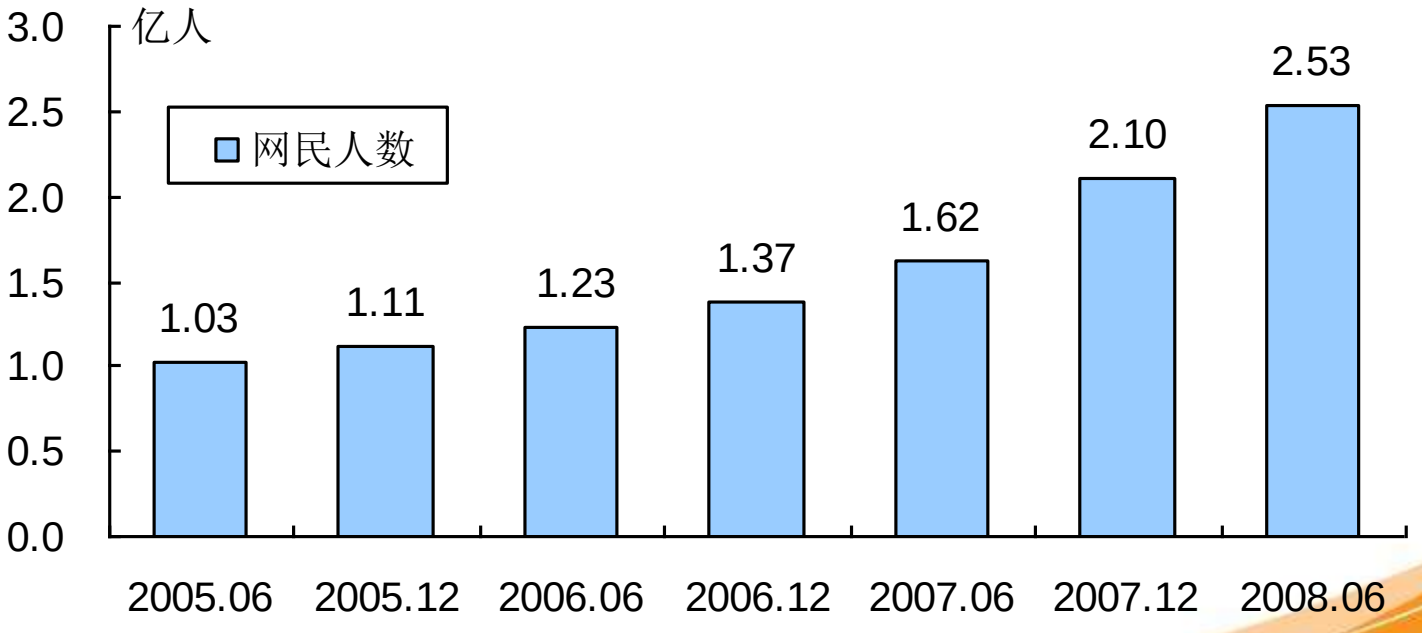
Some Facts:

- 341.6 thousands of primary schools with 107115.3 thousands of enrolled students
- 60885 junior secondary schools with 59579.5 thousands of enrolled students
- 16153 senior secondary schools with 25145.0 thousands of enrolled students
- 14693 vocational schools with 18098.9 thousands of enrolled students

数据来源：中国商务部国际贸易经济合作研究院，2006年中国教育服务业发展概况，
http://tradeinservices.mofcom.gov.cn/e/2008-03-14/26671.shtml

# The technological background of e-Education in China

- The population of Internet users in China reaches 253 millions in June of 2008




www.cnnic.cn，2008.06

数据来源：中国互联网络信息中心CNNIC 《第22次中国互联网络发展状况统计报告》， 2008年 7月24日

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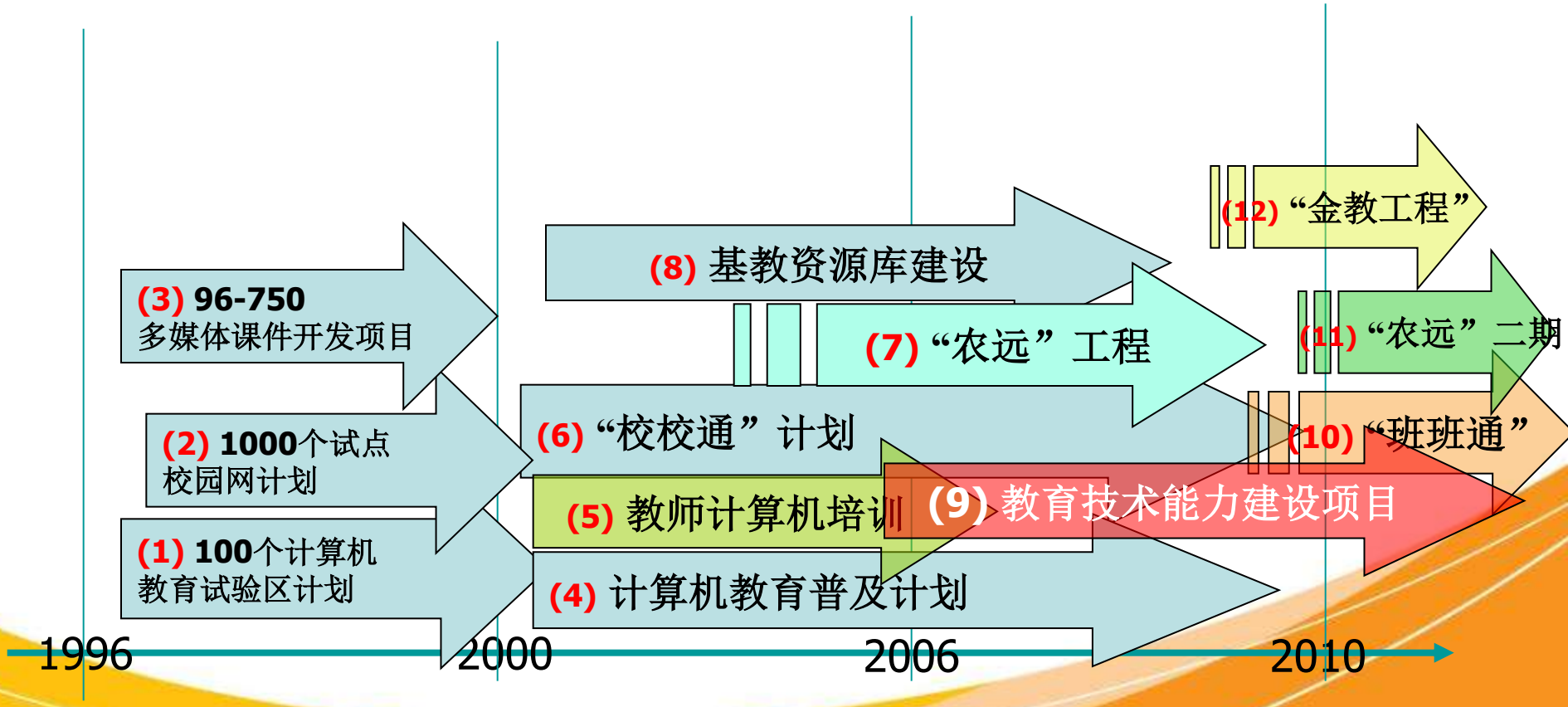
# 中国基础教育信息化路线图

## National projects for e-Education in K12 schools



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# Key projects initiated by MOE (1995-)

(1) 100 experimental zones of computer education, 1996-
(2) 1000 pilot networked campus, 1996-
(3) Multimedia Courseware Development Project, 1996-
(4) Universalizing Computer Education in schools, 2000-
(5) Teacher's Training on Computers, 2000-2005
(6) Connecting-Every-School, 2001-
(7) Distance Education for Rural Schools (Phase I), 2003-
(8) Digital Resources for Basic Education, 2002-
(9) Educational Technology Training for Teachers, 2004-
(10) Connecting-Every-Classrooms, 2010-
(11) Distance Education for Rural Schools (Phase II), 2010-
(12) Educational e-Administration, 2010-

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# 中小学信息技术普及教育
# Universalizing ICT courses in K12 schools

- Computer education was piloted in part of primary & secondary schools at early 1990s. 90年代初开始在部分中小学试验计算机教育
- Computer Education Guidelines for Primary & Secondary Schools was published by MOE in 1997. 1997年教育部印发《中小学计算机课程指导纲要（修订稿）》
- Information Technology Education Guidelines for Primary & Secondary Schools was published by MOE in 2000. 2000年教育部印发《中小学信息技术课程指导纲要>的通知》
- ICT Curriculum Standards for Senior Secondary Schools was published by MOE in 2003. 2003年教育部颁布《普通高中信息技术课程标准》

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# 中小学信息技术普及情况
# Penetration ratio of ICT in K12 schools

- ICT accessibility to schools (in 2005)
  - Senior secondary schools 100%;
  - Junior secondary schools 90%;
  - Primary schools 70%
- Student-Computer ratio
  - 79:1 in 2000 years
  - 22:1 in 2005 years
  - 18:1 in 2009 years
- ICT education (in 2005)
  - Senior secondary schools 100%;
  - Junior secondary schools 80%;
  - Primary schools 20%

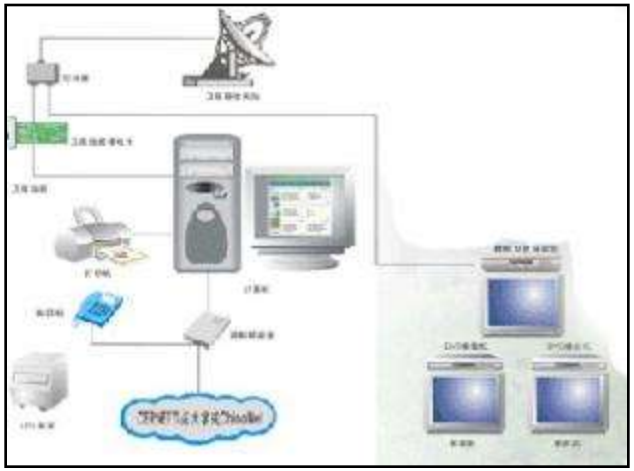
# “农远工程”作为“校校通”之特别举措
# Distance Education for Rural Schools as a complementary approach to accessing ICT

- Pilot，2001-2003, 100 million RMB donated by J.C. Li foundation(李嘉诚基金)
- Diffusion，2003-2005, 10 billion RBM invested by MOE (“百亿工程”)
- Coverage in 2005 years：

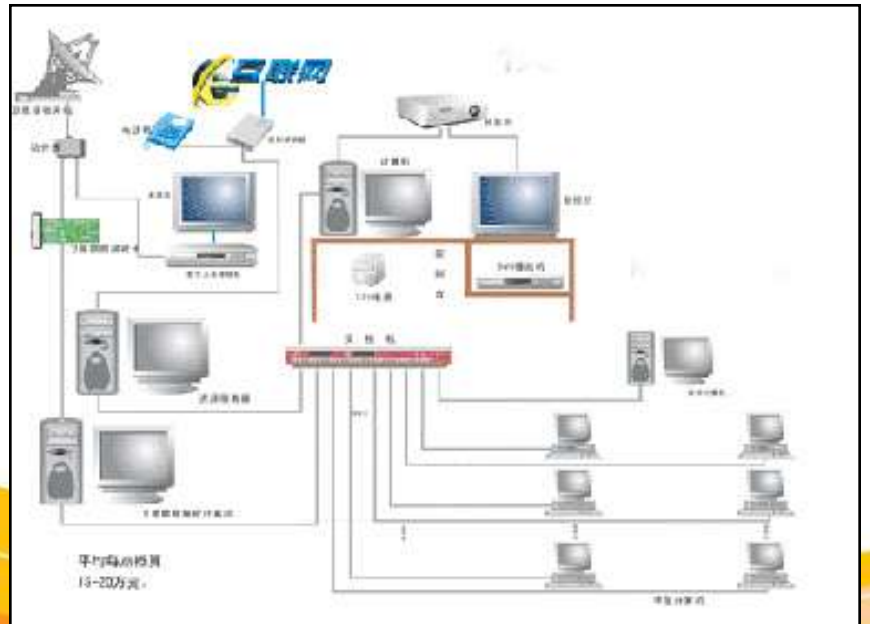
| | Model-1 | Model-2 | Model-3 |
|---|---|---|---|
| School-type | Teaching sites | Primary schools | Junior secondary schools |
| Schools | 110 thousands | 384 thousands | 37.5 thousands |
| Students | 5100 thousands | 81420 thousands | 31090 thousands |
| Equipment | DVD player | Satellite receiver + PC | Satellite receiver + LAN (of 25-50 computers) |

# “农远工程”作为“校校通”之特别举措
# Distance Education for Rural Schools as a complementary approach to accessing ICT

**Model-1 DVD player**



**Model-2 IP Satellite receiver for e-resource downloading**



**Model-3 Multimedia Classroom of 25 PCs as a LAN with IP satellite downloading connection**

# Instructional interactions taking place in the DVD-equipped classrooms: A case analysis

(Model-1 of *Distance Education for Rural Schools*)

# “十五”国家基础教育资源建设项目

# National database of e-resources for K12 education

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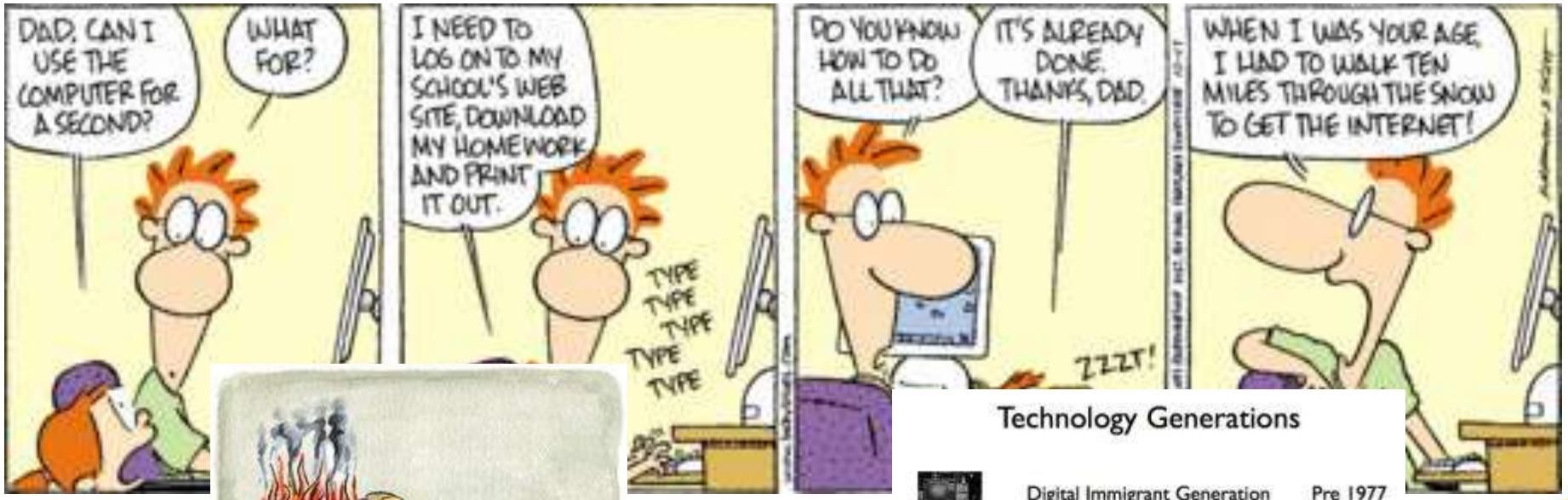
# Capacity building as an emerging demand

- From 2000 to 2005, majority of K12 teachers received a round of training on computer skills
- However, pedagogical use of ICT for teachers remains difficulties
- Intel@ Teach-to-the-Future (ITF) set a good sample of teacher training on pedagogical use of ICT

# Cultural conflictions between *digital natives* and *digital immigrants*





# Younger generations are digital Natives

( © 2001 Marc Prensky)

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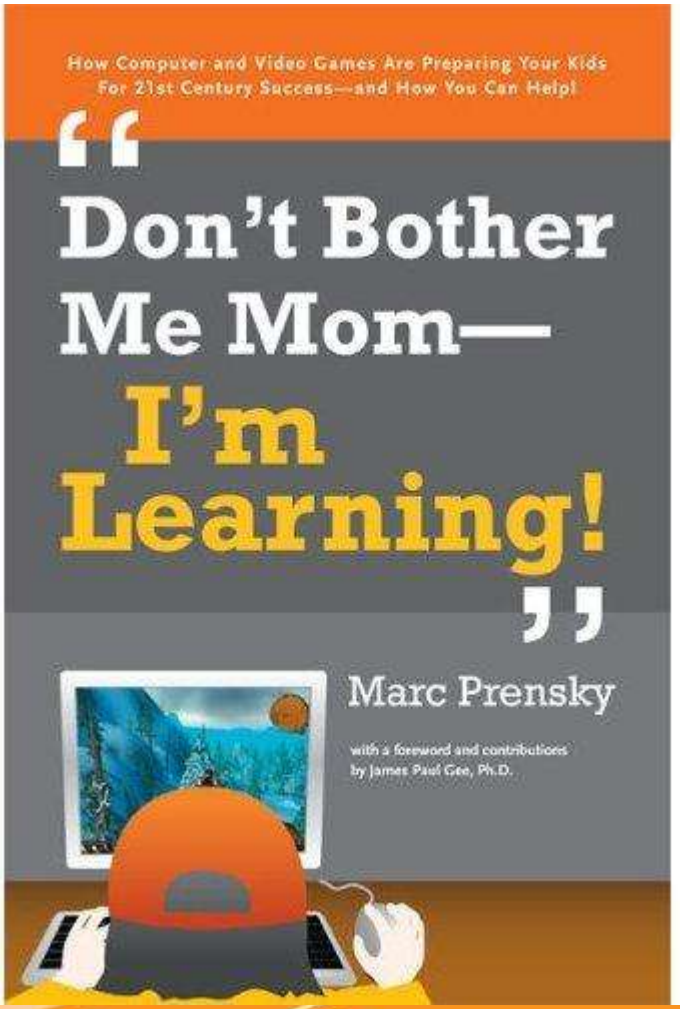
# Our students are digital natives in education

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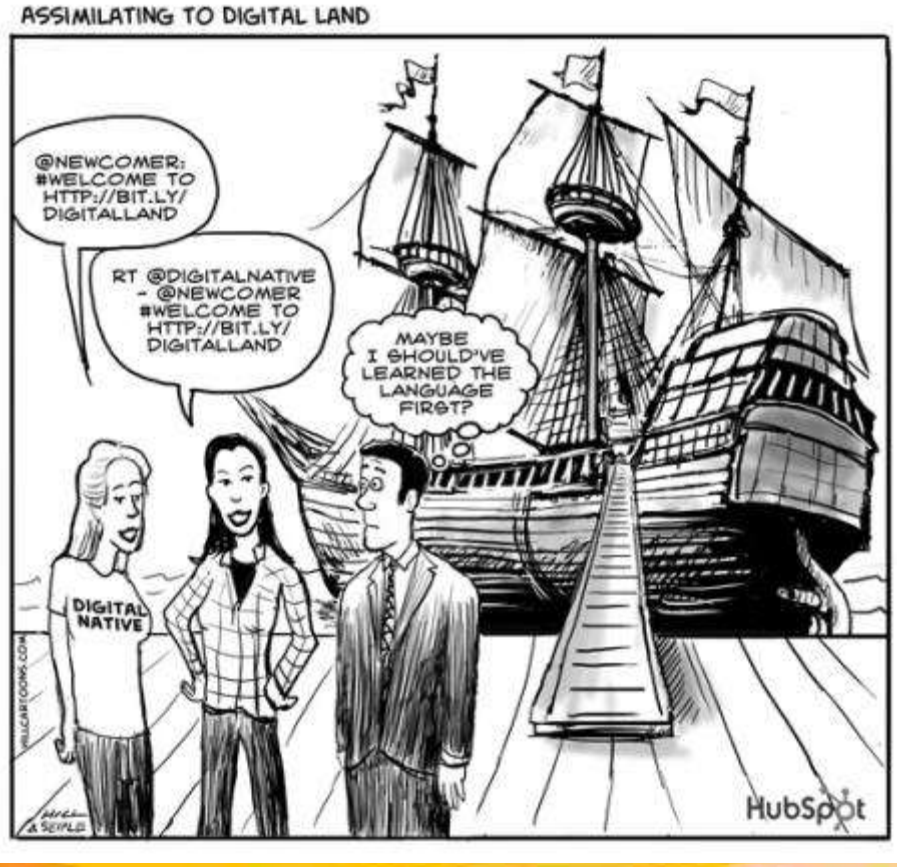
# Some of elders have become *digital immigrants*, but a large part of them remain *digital foreigners*

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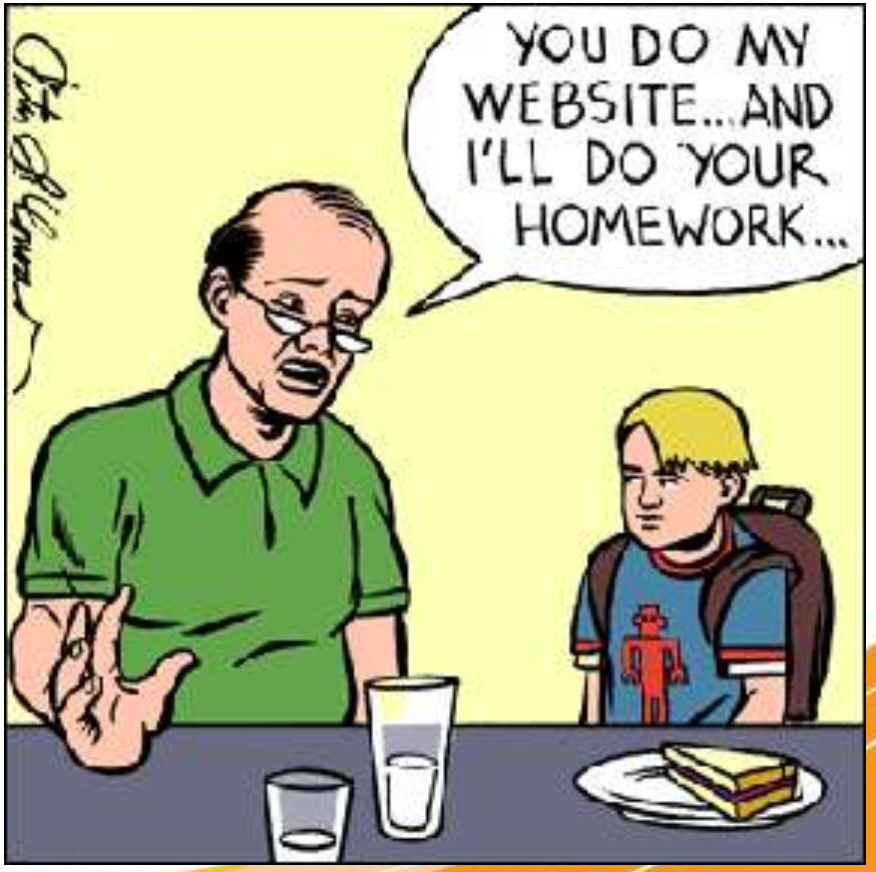
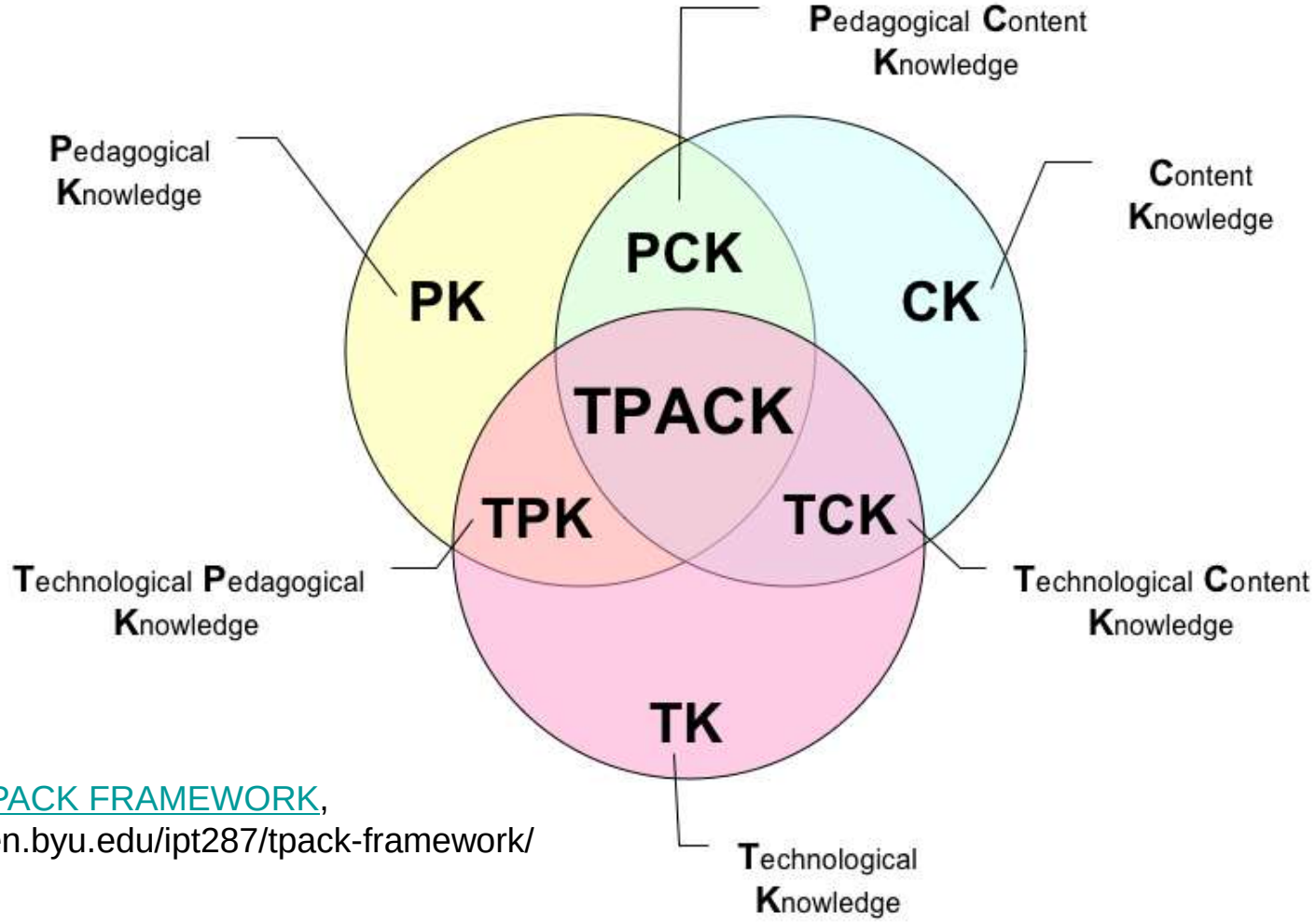
# Teachers in a position of digital immigrants /foreigners would feel awkward in teaching…



# Why technological competencies become so important in teaching & learning?

## Let the TPACK model tell us ……




From: TPACK FRAMEWORK, http://open.byu.edu/ipt287/tpack-framework/

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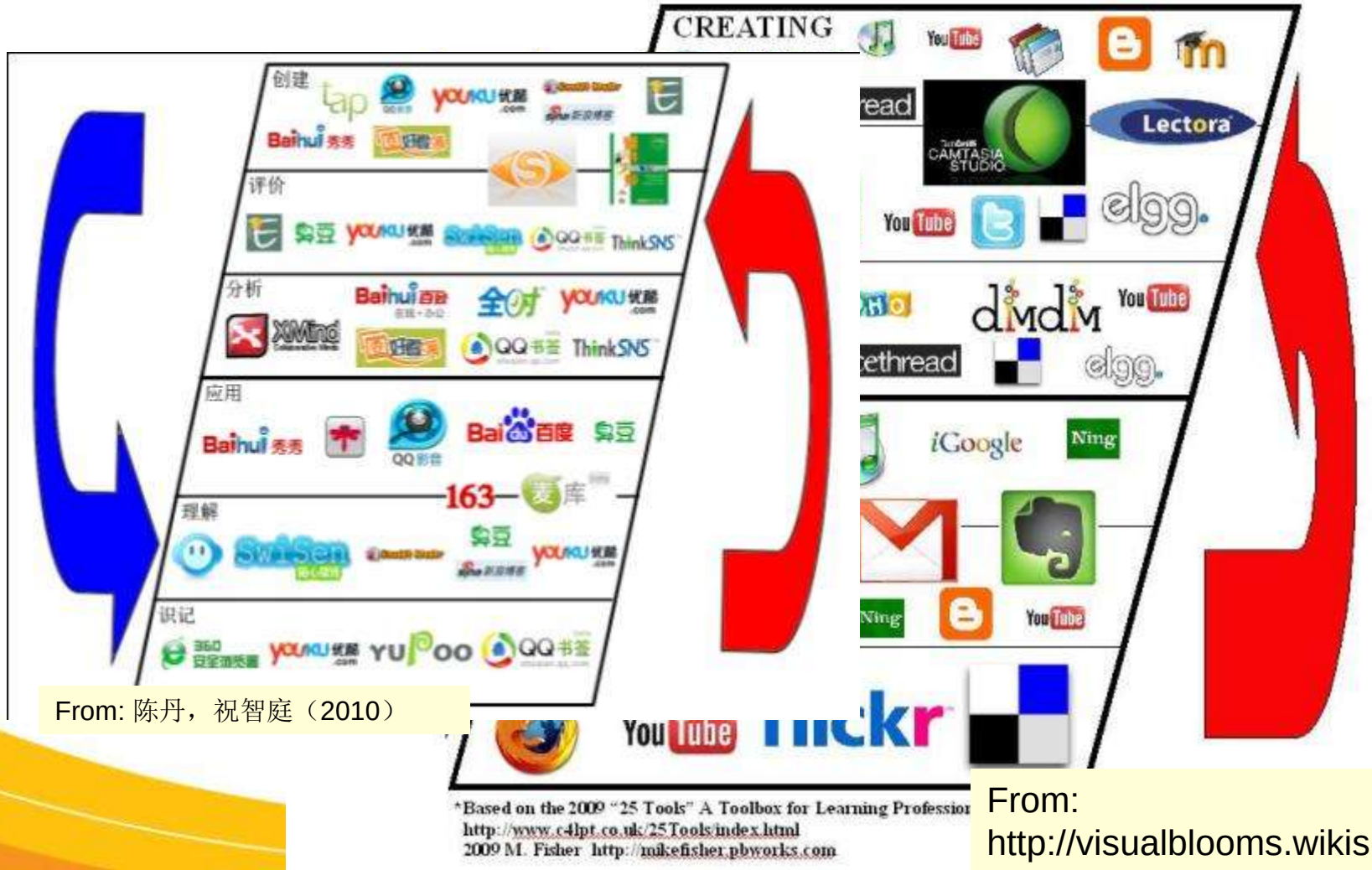
# “Digital Bloom” illustrates a new world of teaching & learning




From: 陈丹，祝智庭（2010）

From: http://visualblooms.wikispaces.com/

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# Developing educational technology (ET) Standards for K12 Teachers: Actions in China

- Organized by MOE, a group of educational technology experts worked together to develop the ET standards
- Knowledge inputs:
  - *National Educational Technology Standards* (NETS) come from the International Society for Technology in Education (ISTE), adopted by USA
  - Intel@ Teach-to-the-Future (Intel@ TF) project provided substantial experiences of training over one million of teachers in China,
  - A large amount of domestic research achievements in technology-pedagogy integrations
- The ET standards for teachers were promulgated by MOE in Dec. 2004

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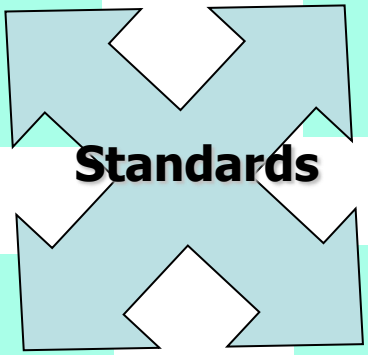
# The structure of ET standards for K12 teachers

- Awareness & Attitudes
  - 重要性认识
  - 应用意识
  - 评价与反思
  - 终身学习

- Knowledge &Skills
  - 理解教育技术理论
  - 能够利用信息资源
  - 掌握教学设计方法
  - 掌握教学评估方法




- Application &Innovation
  - 教学设计与实施
  - 教学支持与管理
  - 科研与发展
  - 合作与交流

Social responsibility
- 公平利用
- 有效应用
- 健康使用
- 规范行为

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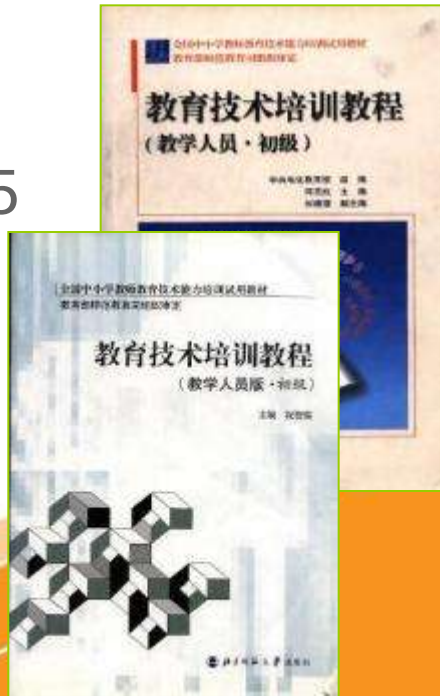
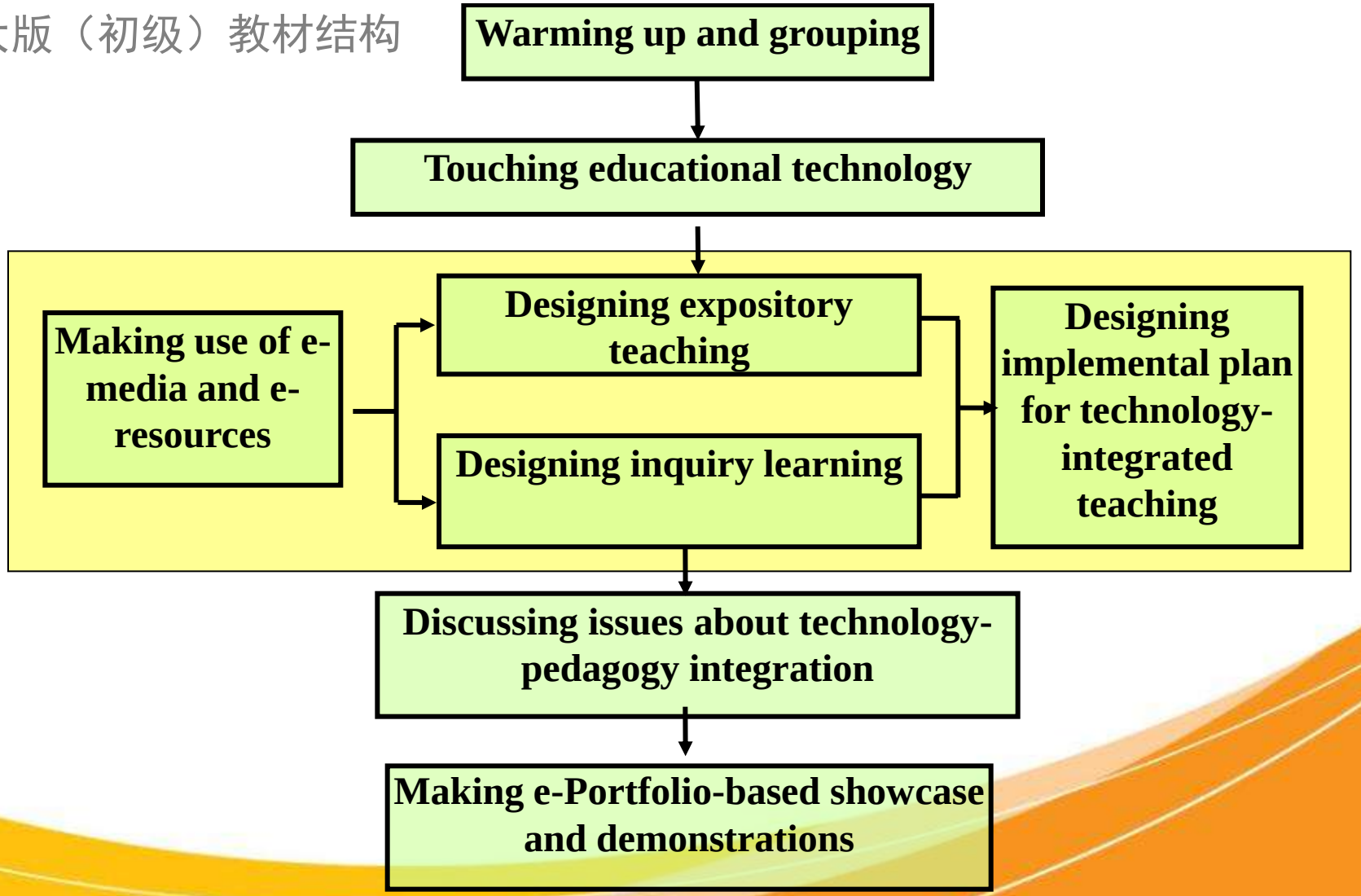
# The development of standard-based training courses

- Multiple proposals from 8 competitive groups of contributors were sent to MOE
- 2 proposals were selected through strict evaluations in may 2005
- Two versions of standard-based courses (of basic level) were approved by MOE through two rounds of pilot trainings at the end of 2005
- Two versions of standard-based courses (of intermediate-level) were approved by MOE in 2008

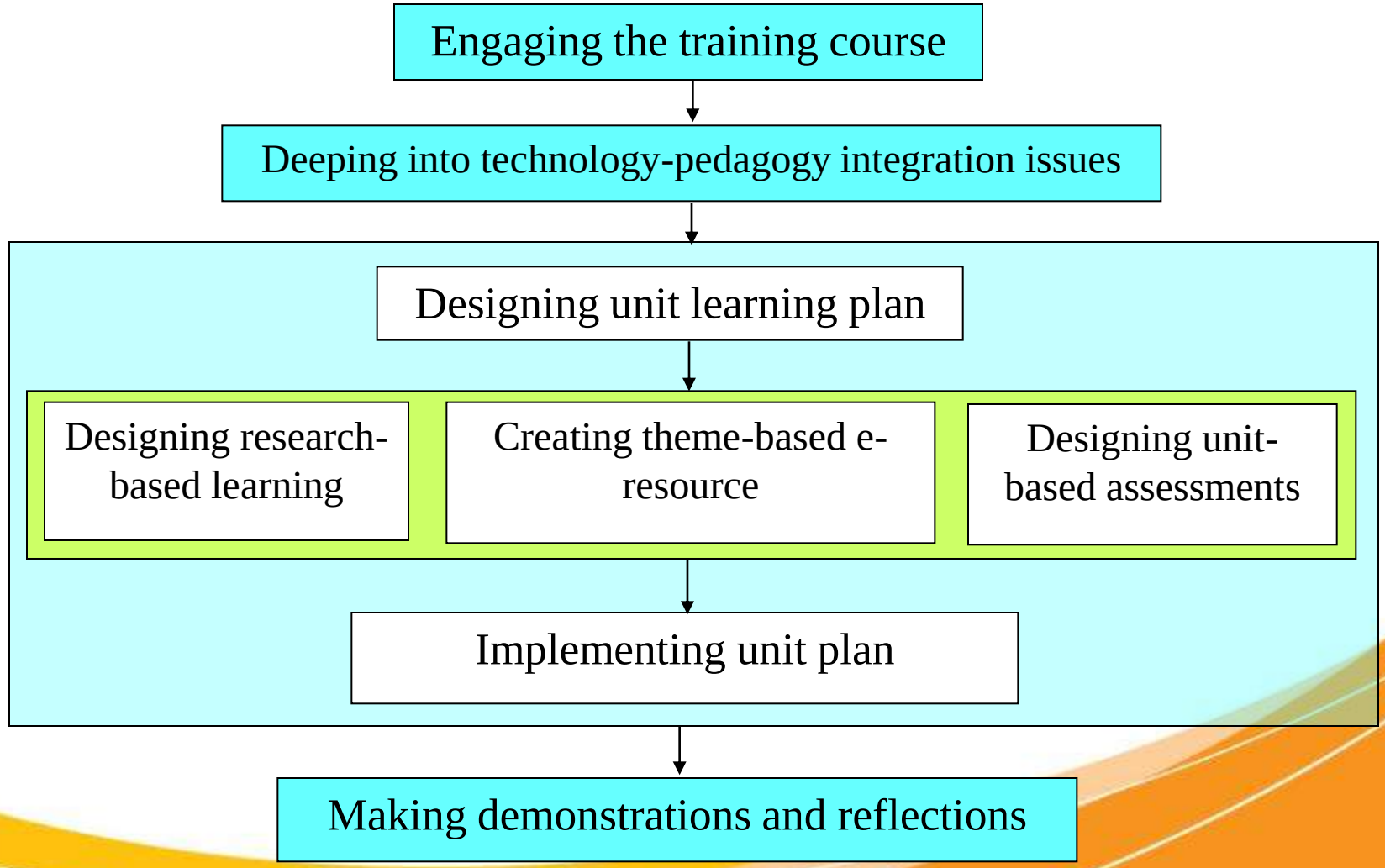


# The architecture of the ET training courses (Basic level)

师大版（初级）教材结构

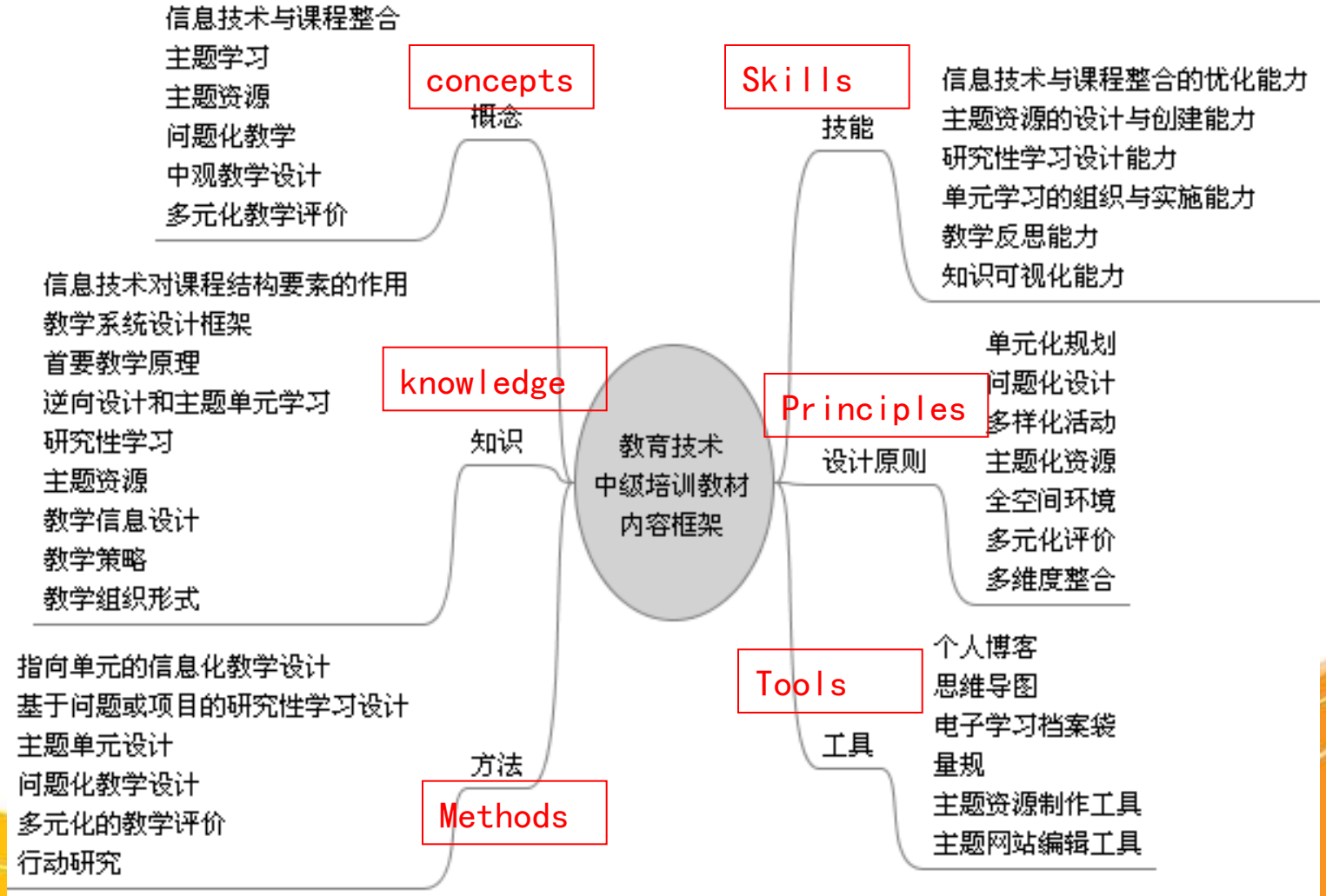


# The architecture of the ET training courses (Intermediate-level)



# 中级版内容要素

# The content repertoire of the ET training courses (Intermediate-level)



# Interrelationship between basic-level and Intermediate-level of the ET training courses

| | Basic level | Mid-level |
|---|---|---|
| Module-1 | Warming up and grouping | Engaging into the training courses |
| Module-2 | Touching educational technology | Deeping into technology-pedagogy integration issues |
| Module-3 | Making uses of Instructional media and e-resources | Designing unit learning plan |
| Module-4 | Designing expository teaching | Designing research-based learning |
| Module-5 | Designing inquiry learning | Creating theme-based e-resource |
| Module-6 | Designing implemental plan for technology-integrated teaching | Designing unit-based assessments |
| Module-7 | Discussing technology-pedagogy integration issues | Implementing the unit plan |
| Module-8 | Making e-Portfolio-based showcase and demonstrations | Making demonstrations and reflections |

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# Implementing nationwide teacher training

- 1450 nation-level trainers were trained with financial supports from MOE
- 35000 local trainers were trained provincially
- Face-to-face training and web-based training are blended up
- 2760 thousands of K12 teachers were trained in 30 provinces during 2005.11 ～ 2010.03

# 网络远程培训

# Web-based ET training

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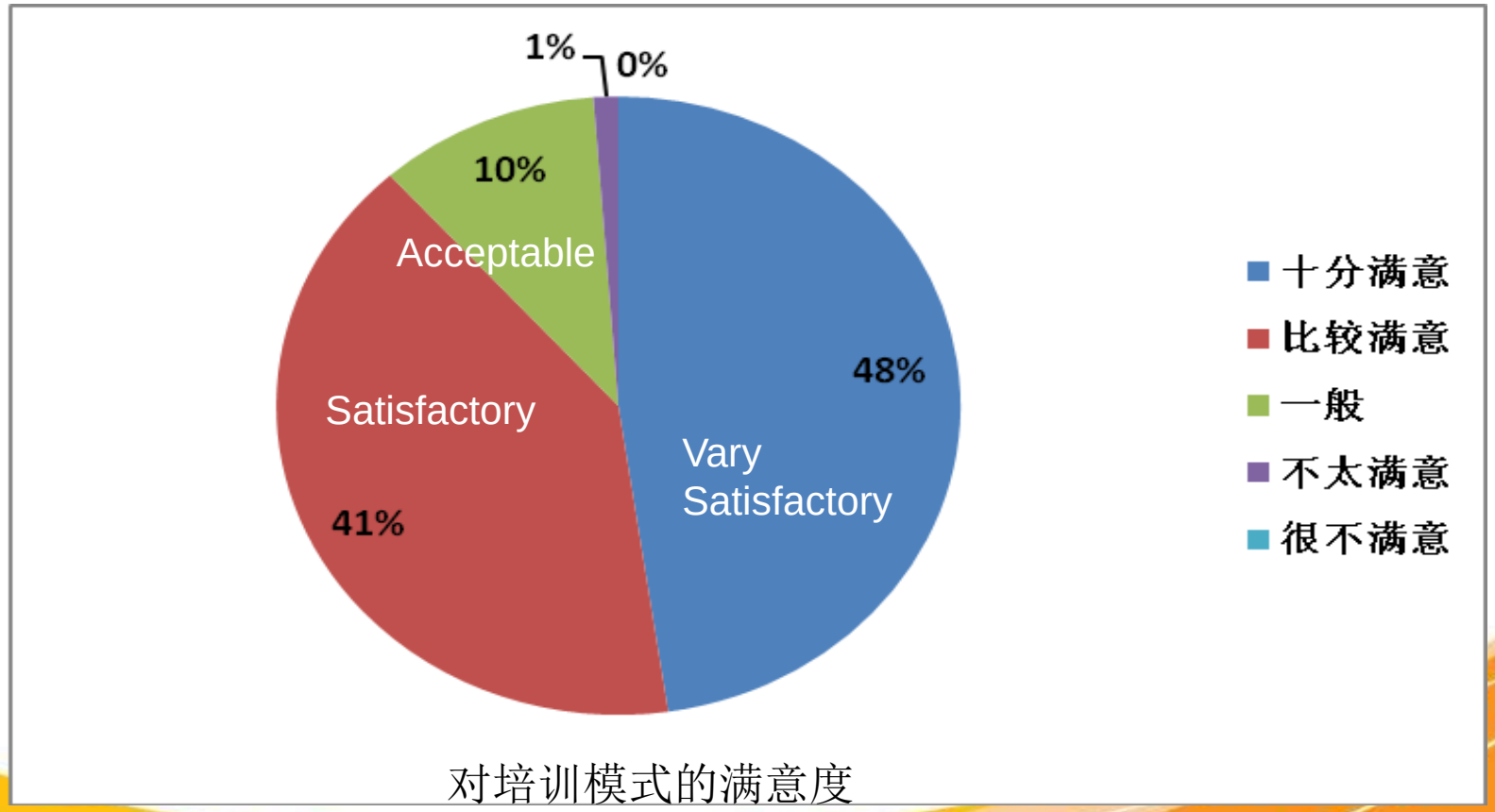
# 网络培训的学员反馈
# Feedback from trainees on web-based training




对培训模式的满意度

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# Implementing nationwide testing of Teacher's ET competencies

- Standard-based tests were developed by National Testing Center in 2006
- 790 thousands of Teacher trainees have taken the testing up to march 2010, with a pass ratio of 87.7%
- Teachers passed the testing are awarded certificates

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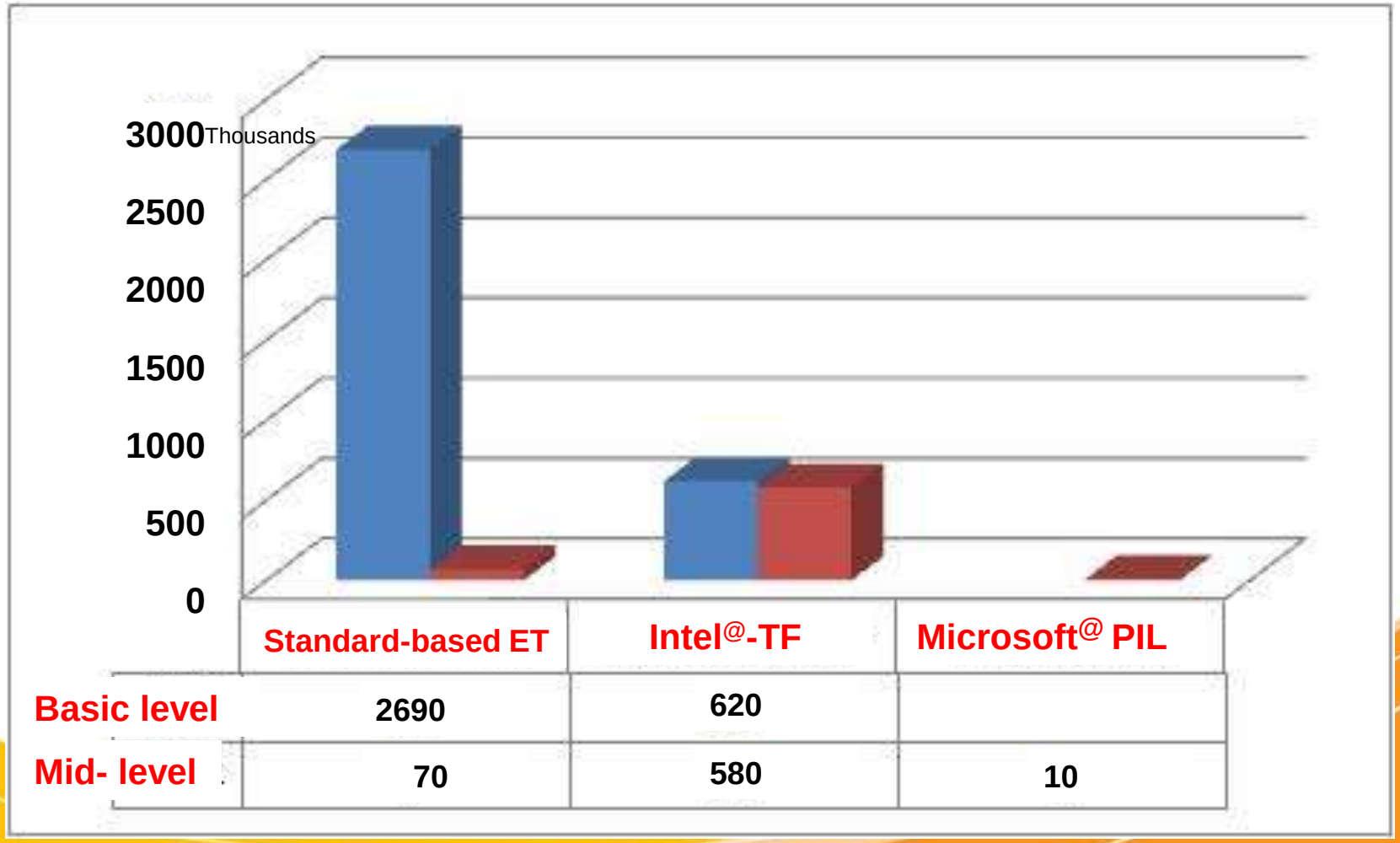
# Aligning different training projects to the ET standards by applying policies from MOE




| | Standard-based ET | Intel@-TF | Microsoft@ PIL |
|---|---|---|---|
| Basic level | 2690 | 620 | |
| Mid- level | 70 | 580 | 10 |

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# Reflections

- ET training is a very tuff task
- Large amount of academic and financial investments are needed
- Joint efforts from educational administration, training institutes and universities can work out better trainings
- Supportive policies from MOE played important role
- Teachers really benefit from quality trainings of ET, thus ET trainings have become one of pillars facilitating teacher’s professional development in China

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# Thank you very much for attention

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