Testing an Instrument Using Structured Interviews to Assess Experienced Teachers’ TPACK

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http://activitytypes.wmwikis.net/Assessments/
TPACK

- exploring
- developing
- assessing
2009*

- 2 surveys
- 2 performance assessments
- 1 discourse analysis framework

2012*

- 10 surveys
- 4 performance assessments
- many content/verbal analyses

*tested for reliability/validity
Assessing Teachers’ Knowledge

observation

interview

artifacts

self-report
Assessing Teachers’ Knowledge

Observation

Interview

Artifacts

Self-report
Assessing Teachers’ TPACK

<table>
<thead>
<tr>
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<td>![Observation Image]</td>
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<td>![Artifacts Image]</td>
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- **observation**
- **interview**
- **artifacts**
- **self-report**
Assessing Teachers’ TPACK

observation

interview

artifacts

self-report
Assessing Teachers’ TPACK

2010

observation

interview

artifacts

self-report
• Valid & reliable TPACK instrument
• External assessment of teaching artifacts (e.g., lesson plans)
• Adapted the Technology Integration Assessment Instrument (Britten & Cassady, 2005)
• Informal feedback: Experienced teachers
• Formal feedback: TPACK researchers
• Rubric revision
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Available: [http://activitytypes.wmwikis.net/Assessments](http://activitytypes.wmwikis.net/Assessments)
Validity Analyses
Validity Analyses

- Construct validity: 6 expert reviewers
- Face validity: 14 experienced teachers
Four Reliability Analyses

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Four Reliability Analyses

- Interrater reliability - Intraclass Correlation Coefficient = .857
- Interrater reliability - Percent Agreement = 84.1%
- Internal Consistency - Cronbach’s Alpha = .911
- Test-Retest Agreement = 87.0%

(preservice teachers’ lesson plans)
Assessing Teachers’ TPACK

observation
artifacts

interview
self-report
Assessing Teachers’ TPACK

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Validity

• **Construct validity**: 5 expert reviewers

• **Face validity**: 11 experienced teachers
Instrument Testing

• 12 videotaped classroom lessons, various content areas
• 6 preservice, 6 inservice
• Elementary, middle & high school
• 11 scorers in 2 locations
Four Reliability Analyses

• Interrater reliability - Intraclass Correlation Coefficient
• Interrater reliability - Percent Agreement
• Internal consistency - Cronbach’s Alpha
• Test-Retest Agreement
Four Reliability Analyses

- Interrater reliability - Intraclass Correlation Coefficient = .802
- Interrater reliability - Percent Agreement = 90.8%
- Internal consistency - Cronbach’s Alpha = .914
- Test-Retest Agreement = 93.9%
### Assessing Teachers’ TPACK

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- **Observation**:
  - Use of technology in teaching.
  - Technology integration.

- **Interview**: (
  - Teacher's views on technology.
  - Challenges encountered.

- **Artifacts**: (
  - Classroom materials.
  - Student work samples.

- **Self-report**: (
  - Teacher's self-assessment.
  - Technology usage.

The use of red checks indicates the methods that are currently in practice.
## Assessing Teachers’ TPACK

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2012
Structured Interview Protocol
Structured Interview Protocol

LESSON DESCRIPTION
Structured Interview Protocol

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• Content and/or process topics addressed
Structured Interview Protocol

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• Student learning goals
Structured Interview Protocol

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“Walk me through the lesson/project as it unfolded in the classroom.”
Structured Interview Protocol

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- Content and/or process topics addressed
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- “Walk me through the lesson/project as it unfolded in the classroom.”
- EdTechs use: Students and teachers
Structured Interview Protocol

LESSON DESCRIPTION

- Content and/or process topics addressed
- Student learning goals
- Students description
- “Walk me through the lesson/project as it unfolded in the classroom.”
- EdTechs use: Students and teachers
- Relevant contextual information
Structured Interview Protocol
Structured Interview Protocol

TPACK-SPECIFIC QUESTIONS
Structured Interview Protocol

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• “How and why do the particular technologies used in this lesson/project “fit” the content/process goals?”
Structured Interview Protocol

TPACK-SPECIFIC QUESTIONS

• “How and why do the particular technologies used in this lesson/project “fit” the content/process goals?”

• ...”fit” the instructional strategies you used?”
Structured Interview Protocol

TPACK-SPECIFIC QUESTIONS

• “How and why do the particular technologies used in this lesson/project “fit” the content/process goals?”

• ...”fit” the instructional strategies you used?”

• “How and why do the learning goals, instructional strategies, and technologies used all fit together in this lesson/project?”
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- 12 audio-recorded lesson interviews; various content areas
- 6 preservice, 6 inservice
- Elementary, middle & high school
- 11 scorers in 2 locations
Reliability Analyses

• Interrater reliability - Intraclass Correlation Coefficient
• Interrater reliability - Percent Agreement
• Internal consistency - Cronbach’s Alpha
• Test-Retest Agreement
Reliability Analyses

• Interrater reliability - Intraclass Correlation Coefficient = 0.870
• Interrater reliability - Percent Agreement = 91.7%
• Internal consistency - Cronbach’s Alpha = 0.895
• Test-Retest Agreement = 100%
Instrument Reliabilities:
Lesson Plans, Observations, Interviews
Instrument Reliabilities:

Lesson Plans, Observations, Interviews

- Interrater reliability - ICC:
  
  0.857  0.802  0.870
Instrument Reliabilities:

Lesson Plans, Observations, Interviews

- Interrater reliability - ICC:
  - .857
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- Interrater reliability - Percent Agreement:
  - 84.1%
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  - 91.7%
**Instrument Reliabilities:**

**Lesson Plans, Observations, Interviews**

- Interrater reliability - ICC:
  - 0.857
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- Interrater reliability - Percent Agreement:
  - 84.1%
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- Internal consistency - Cronbach’s Alpha:
  - 0.911
  - 0.914
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Instrument Reliabilities:
Lesson Plans, Observations, Interviews

• Interrater reliability - ICC:
  .857  .802  .870

• Interrater reliability - Percent Agreement:
  84.1%  90.8%  91.7%

• Internal consistency - Cronbach’s Alpha:
  .911  .914  .895

• Test-Retest Agreement:
  87%  93.9%  100%
Technology Integration Assessment Instrument (2010)

Technology Integration Observation Instrument (2011)

Technology Integration Assessment Interview Protocol (2012)

Available: http://activitytypes.wm.edu/Assessments