AN INITIAL ASSESSMENT OF CHINESE TEACHERS' READINESS TO TEACH 21ST CENTURY SKILLS

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Outline

- Background of the study
  - Introduction about the context and constructs
    - 21st century skills
    - Teachers' Sense of Efficacy
    - Self-determination Theory
    - Achievement Goal Theory
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  - Methodology and Results
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Background of the study

- In this 21st century, teachers are required to
  - Take up multiple roles
  - Teach not only traditional subject knowledge but also higher order cognitive skills
  - 21st century skills
- Johnson et al. (2005) claimed that “teacher” is one of the most stressful occupations

Components of the study

21st century skills teaching
- Teaching context
- Teaching motivation
- 21st century skills
- Teachers' sense of efficacy
- Self-determination
- Achievement goal

INTRODUCTION ABOUT THE CONTEXT & CONSTRUCTS
21st century skills (P21, 2009)

Life and career skills
- Initiative and self-direction
- Social and cross-cultural skills
- Flexibility and adaptation
- Etc.

Learning and innovation skills
- Creativity
- Critical thinking
- Communication
- Etc.

Information, media, and technology skills
- Information literacy
- Media literacy
- ICT literacy

Teachers’ Sense of Efficacy (TSE)
- Teacher’s conviction that he/she has the ability to influence students’ learning, even though some students may have difficulties or not motivated in learning (Guskey & Passaro, 1994)

Self-determination Theory (SDT)
- Self-determination refers to the degree in which action is caused by innate drive (Deci & Ryan, 1985)

Different level of self-determination

Better teaching performance

How can self-determination influence teaching performance?

(Vallerand, 1997)
Does self-determination influence TSE?
- Cerasoli and Ford (2014) suggested self-determination alone does not cause better performance
- Elliot and Church (1997) proposed that achievement goal provide people with reasons and purposed in behavior and performance
- Achievement goal is also important!

Achievement Goal Theory
- Individual's desire to build and show competence on a given task (Dweck & Leggett, 1988)

Multi-dimension of achievement goal
- Achievement Goal Theory
  - Valence
    - Positive - Approach
    - Negative - Avoidance
  - Orientation
    - Task-oriented
    - Self-oriented
    - Other-oriented

How can achievement goal influence TSE?
- Task and self goal orientation is related to level of self-efficacy (Bell & Kozlowski, 2002)
- TSE predicts goal orientation (Cho & Shim, 2013)
  - Teachers with higher teacher efficacy adopt task-approach, self-approach and other-approach goal

Research question
- To what extent will self-determination and achievement goal influence teachers’ sense of efficacy in the context of 21**th** century skills teaching?
Main purpose of the study

- Examine the relationships between
  - Teachers’ self-determination
  - Teachers’ achievement goal
  - Teachers’ sense of efficacy
- Examine the mediating effect of Teachers’ achievement goal between
  - Teachers’ self-determination
  - Teachers’ sense of efficacy

Significance of the study

**Theoretical contribution:**
- Provide insights for explaining how self-determination and achievement goal influence TSE

**Practical contribution:**
- Provide guidance for schools to cultivate teachers’ self-beliefs on 21st century skills teaching, thus to improve their performance

Participants

- 349 primary school teachers have participated
  - Invalid cases:
    - 79 cases with invalid responses
    - 53 drop-out cases
    - 21 outlier cases
  - Missing data problem were solved using multiple imputation
  - Gender: 15.5% male teachers and 83.1% female teachers
  - Subjects: Chinese, English, Maths, Science, PE, Social & Conduct, IT, etc.
  - Teaching level: Primary grade 1 to 6
Measures

- Demographic data
- Marlowe-Crowne Social Desirability Scale (MC-SDS) (Crowne & Marlowe, 1960) (33 items)
- Behavioral Regulation for Teaching Questionnaire (BRTQ), adapted from Mullan, Markland, and Inglew (1997) (55 items)
- Achievement Goal Questionnaire (AGQ) (Elliot, Murayama, & Pekrun, 2011) (18 items)
- Teachers’ Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001) (24 items)
- Open-ended questions on teachers’ interpretation regarding 21st century skills (12 questions)

Validating the scales

- BRTQ
  - Item 14 was deleted because of exceptionally low factor loading (factor loading = .28)
  - CMIN/DF = 2.204
  - GFI = .904
  - TLI = .915, CFI = .935
  - RMSEA = .078, Pclose = .004

- AGQ
  - Item 3, 11, 13 were deleted because of its low factor loading (factor loading = .65, .61, .64, respectively)
  - CMIN/DF = 2.018
  - GFI = .913
  - TLI = .933, CFI = .954
  - RMSEA = .072, Pclose = .02

Descriptive statistics

- Teachers reported higher level of self-determination
- Teachers have task-approach and self-approach goals on teaching
- Teachers have moderate to high level of TSE

Validating the scales (continued)

- TSE
  - Item 1, 4, 5, 11, 16, 17 were deleted because of their low factor loading (factor loading = .42, .64,.65, .60, .59, .60, respectively)
  - CMIN/DF = 2.020
  - GFI = .870
  - TLI = .924, CFI = .935
  - RMSEA = .072, Pclose = .003

Internal reliability

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<th>Scale</th>
<th>Subscale</th>
<th>Cronbach’s Alpha</th>
<th>CMIN/DF</th>
<th>GFI</th>
<th>TLI</th>
<th>CFI</th>
<th>RMSEA</th>
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Table 4: Internal reliability for the scales

Descriptive statistics (continued)

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<td>KURTOSIS</td>
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</table>
The effect of social desirability
- Most of the variables were not affected by social desirability
- Only “student engagement” from TSES has weak negative correlation ($r = -.17, p < .05$) with social desirability

HYPOTHESES TESTING

External regulation
- Introjected regulation
- Identified regulation
- Intrinsic regulation
- Other-approach
- Self-approach
- Task-approach

Conclusion
- Self-determination alone did not predict TSE
  - Cerasoli and Ford (2014) suggested that intrinsic motivation does not necessarily lead to improvement
- Self-approach goal predicted TSE on
  - Classroom management
  - Student engagement
  - BUT NOT instructional strategy!
Conclusion

- Whatever teaching goals they set, teaching 21st century skills is challenging...
  - Most teachers gave not sufficient explanation on 21st century skills
  - Schools did not emphasize enough on 21st century skills
  - Parents and families did not care too much about 21st century skills
  - Students could not afford too much time to learn skills other than disciplinary knowledge

Implication

- Schools should care equally on both
  - Teachers' self-determination
  - Teachers' achievement goal
- School can:
  - Give more training and facilitation on 21st century skills teaching
  - Promote more on 21st century skills teaching
  - Emphasize more on 21st century skills teaching
  - Introduce 21st century skills to parents

Limitation

- Not possible to
  - Assess 21st century skills ACTUAL teaching
  - Assess 21st century skills teaching effectiveness
  - Interview all teacher respondents
  - Observe teaching performance during classes

Reference