Using Video Annotation Tool to Enhance Student-teachers’ Reflective Thinking and Communication Competence Through a Collaborative Learning Community

Presenter: Dr. Mabel Shek
Department of Special Education and Counselling
In Hong Kong context

- In addition to teaching, teachers are responsible for students’ psychosocial development (e.g. well-being, interpersonal relationship, behavioral management)
- Provide **initial counselling** to students when necessary
- Conduct **consultation with parents annually** or when special issues emerged, e.g. student’s emotional/behavioral problems
- **Communication skills** are essential (Shek, 2013)
Reflective thinking becomes increasingly important for teachers

- Critically analyze and reflect upon their practice to better integrate theoretical concepts into teaching practices
- Carefully examine their communication skills (E.g. delivery of messages, implications of use of different microskills, particularly in counselling/consultation)
- Key competence for teachers

(Hatton & Smith, 1995; Korthagen & Vasalos, 2010; Moon, 2006)
Reflection is…

- A cognitive process centered on the skills of thinking and reasoning (Dewey, 1904)
- Challenging one’s own assumptions, being open-minded to different alternative perspectives, being analytical, integrating knowledge… (Davis, 2006)
- Two forms of reflective process (Schön, 1991): Reflection-on-action, reflecting on an experience that one has already had
  Reflection-in-action, reflecting on the actions as one is doing them
- There are different levels of reflection along a depth continuum, ranging from descriptive accounts, to different higher levels of cognitive processing, to transformative or intensive reflection. (Bain et al., 2002; Grossman, 2008; Ryan & Ryan, 2013)
Development of video-based learning

1. Microteaching practices in classes
   - Course instructors and classmates gave comments afterwards (Kong, 2010; Sherin, 2007)

2. Video-based platform
   - Uploaded videos → peer watched them and gave comments collaboratively (Wu & Kao, 2008)

   Criticisms: Difficult to observe, analyze and do reflection

3. Video Annotation Tool (VAT)
   - Mostly embedded in the video-based platform
   - Capturing specific segment from the whole video
   - Attaching corresponding comments on the segment (Bryan & Recesso, 2006)
Research objectives

- Video-based Peer Learning platform
- Video Annotation Tool

Enhance:
1. Reflective thinking
2. Communication competence
Research Questions

- Q.1 Would student-teachers using VAT during their collaborative learning on video-based platform have greater improvement in reflective thinking and communication competence in consultation practices?

- Q.2 How does video-based platform facilitate student-teachers’ collaborative learning?

- Q.3 What is the advantage of VAT that facilitates student-teachers’ learning?
Methodology

Participants & Research Design

➢ Participants
  • 80 student-teachers from two classes “Comprehensive School Guidance”
  • Semester 2 of 2017/18
  • Consented voluntarily

➢ Design: Experimental (VAT) V.S. Comparison (non-VAT) classes
  • Experimental → used VAT to give peer feedbacks mutually on the platform
  • Control → Give peer feedbacks on platform mutually after browsing the videos
Took the 1st consultation practice videos

Accomplished 1st 1st survey and reflective journal

Uploaded videos on online platform, Using VAT for comment or Giving general feedback to group members (Peer learning)

Accomplished 2nd 2nd survey and reflective journal

Took the 2nd consultation practice videos

Two focus group interviews 4 student-teachers from each class
- How the platform facilitates learning?
- Advantage of using VAT?
The “Mark-in” and “Mark-out” buttons for creating a bookmarked (annotated comment)

Comment on the bookmarked video segment
Using VAT to provide feedback

Comment will be shown while playing the selected segment
Methodology

Data Collection and Analysis

**Surveys on communication competence** – Quantitative Data

Using 2 x 2 Mixed ANOVA to analyze the differences between pre-test and post-test

**Self-reflective journals** (200-300 words) – Qualitative Data

- Using *content analysis* method for data analysis
  - Divide each reflective journal into different segments
  - Analyze reflective segments in each journal by numbering the level of reflection adapted from the model of Ryan & Ryan (2013) and Bain et al. (2002) with members check
  - Average score of reflective thinking in each journal
- Members check to ensure reliability
  - Ensuring the inter-rater reliability (Cronbach’s alpha): 16 journals were co-rated by two independent raters
  - Discussed the discrepancy when it was numerically large and re-coded again
  - Journal segment: 0.836; Score assignment: 0.93
<table>
<thead>
<tr>
<th>Level</th>
<th>Name</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Reporting and</td>
<td>The reflective note includes description(s) of some scenarios or events,</td>
<td>...I found that I am too nervous when having the mock consultation, have too many pauses and always look downwards... (Student A)</td>
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<td></td>
<td>Responding</td>
<td>expression(s) of writer’s feeling(s) and subjective judgement(s) or</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>identification(s) of either knowledge understand, skills applied, one’s</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>strength or weakness pertinent to the professional practice.</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Relating</td>
<td>The reflective note indicates writer’s articulation of skill, knowledge</td>
<td>...I encouraged the parent to express his feelings and opinion by using some phrases such as “Yes, I understand that“. This can let the parent feel more comfortable and willing to have a deeper conversation with the teacher... (Student A)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>applied (e.g. theoretical concept) or own strength and weakness,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>supplemented by description of corresponding scenario in the professional</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Reasoning</td>
<td>The reflective note illustrates writer’s identification and elaboration</td>
<td>...I think that the skills of minimizing parent’s emotions and normalizing the “problems” are crucial. I can let the parent know that student's misbehavior is not a shameful issue, which in turn increases the chance to co-operate with class teachers... (Student B)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>of implicit significant factor(s) underlying the scenarios that are crucial</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>to the in-depth understanding of the whole process in the professional</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Transformative</td>
<td>The reflective note discusses how the reasoning process can contribute</td>
<td>...It is undesirable to ask the parent “does your daughter have any friend in school?”, since it may create a delusion that having no friend is a problematic issue and threaten the parent unnecessarily. In future, this question can be replaced by the question like “do you know any of your daughter’s best friend(s) in school?” ... (Student C)</td>
</tr>
<tr>
<td></td>
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<td>to the writer’s new insights or perspectives, which subsequently leads</td>
<td></td>
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<td>to writer’s advancement and transformation in professional practice.</td>
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The average score of reflective thinking = Total score summed up from all reflective segments ÷ number of reflective segments
Results

(2 x 2 Mixed ANOVA
Reflective thinking)

Students using VAT in peer-learning tended to increase their average reflective thinking more significantly over time, $F(1, 70) = 4.164, p = .045 < .05$, partial eta square = .052.
Results

(2 x 2 Mixed ANOVA Communication competence)

- Student teachers in both classes improved significantly over time, $F(1, 76) = 114.581$, $p < .001$, partial eta square = .601.
- Those in VAT class did not enjoy better improvement over time, $F(1, 76) = .027$, $p = .689 > .05$. 

<table>
<thead>
<tr>
<th>Learning type</th>
<th>VAT peer-learning</th>
<th>Non-VAT peer-learning</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
</tr>
<tr>
<td>First questionnaire</td>
<td>2.575</td>
<td>.430</td>
</tr>
<tr>
<td>Second questionnaire</td>
<td>3.083</td>
<td>.385</td>
</tr>
</tbody>
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Results

(Focus group interviews)

- Benefits of video-based platform
  - Observational learning: Watching how others might perform in the similar scenarios
  - Inclusion of multiple peer feedbacks: Students’ different perspectives on the same problems in the videos

- Advantage of VAT learning
  - Peer comments were "contextualized"
  - Specific comments corresponded to specific problems occurred in the specific time segment
Video Annotation Tool and Communication Competence

Creating a positive and supportive environment to enhance one’s own communication competence

- Providing opportunities to observe how others would perform in similar scenarios that facilitate students to be open to receive comment for improvement and model others’ practice. It created a positive and supportive learning environment
- Comparing ones’ strengths and weaknesses with others that able to learn from peers by viewing and receiving specific feedback at the online platform and boost their confidence in communication

Sharpening communication skills by receiving multiple peer feedback

- Different perspectives and feedback will provide students with various approach to a situation or scenario which deepen their understanding in human interaction
- Feedback from a specific segment was more objective/unbiased that will facilitate student to deepen their reflection on one’s skills

Improvement in communication competence might need to take more time.
Video Annotation Tool and Reflective Thinking

- Easily matched the feedback with specific video segments that facilitated student to review one’s own skills performance
- Made annotated feedback while browsing videos to lower the possibilities of memory decay and the feedback would be more accurate
- Reduced cognitive loads during video learning that would be an incentive for engaging student in the self-directed learning process (Chiu et al., 2016)
- Multiple perspectives to reflect on personal and others’ communication skills through interacting with peers and by receiving diverse but specific feedback on specific segment of video
- Deepen reflective thinking through observing, analyzing and reflecting on one’s own performance
- Augmented Reflection-in-action by Reflection-on-action
Enhancement of Future Practice

- Develop teacher’s guidebook to promote reflective learning in Higher Education
- Using reflections frameworks/model to teach students on reflective thinking to enhance the level of reflection
- Apply blended learning mode to engage students in face-to-face professional dialogue to discuss how to enhance their skills and reflection after making and receiving feedback from online peer learning platform
- Establish an archive of skill practice video for students’ observe, analyse and reflect on the learned skills
Conclusion

The current study demonstrated...

- Benefits of video-based platform and VAT function on promoting learning effectiveness in communication skills

However...

- Not all students could improve to higher level of reflective thinking level over time (even those in VAT class)

Limitation and Further study

- To investigate the students’ motivation in providing feedback to their peers, e.g. no. of feedback for each video and by individual interview
- To experiment lecturer’s facilitation at online platform to study the effectiveness of learning
- Similar study can be replicated in other skill practice courses, e.g. microteaching, counselling skills training courses etc.
References


