Web 2.0 Tools Supporting Beginning Teachers in an Online Environment

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Introduction

Research Review
Recent developments in interactive web 2.0 tools make the use of video/audio/text for examining and improving reflective practices increasingly viable within online environments. Additionally, the issues of providing efficient, sustainable subject specific support to beginning science and mathematics teachers led us to explore the use of web 2.0 tools in Teacher Induction Network –TIN.

The Web 2.0 Tools in TIN
Flipgrid: Flipgrid gives another venue for video discussion around a prompt provided by the instructor. Teachers can also learn to distill ideas into 90-second bites, and while listening to their peers’ responses.

Reflective Journal: The journal is the only TIN component not shared with the other beginning teachers. The journal is a place for catharsis for beginning teachers about their professional experiences.

Discussion Forum as Venture-Vexation: This component is implemented through Small Learning Communities organized by subject matter and grade level. The beginning teachers ask questions and post concerns in this area. Primarily teachers posted vexations that the small groups worked on together using readings suggested by each other and the instructor creating a plan for resolution.

Research Methodology

Research Questions
what is the development of beginning teachers’ reflective practices after their participation in an online teacher induction program using various tools for their responses?
1. What affordances do web 2.0 tools used in TIN offer as a tool for reflection? (QUAL)
2. How do the post survey findings extend, refute, or illuminate the affordances for the development of reflective practices of teachers offered by web 2.0 tools used in TIN? (quan)

Theoretical Framework
Theoretical framework of “Reflection-on-action” guides this study. Dewey (1933), Schon (1981) and Rodgers (2002) all talk about reflection on action and reflection-in-action. As we consider how participants in TIN reflected on their teaching practice, it is important to frame our work as researchers, instructors, and designers of this online environment. (McKenney & Visscher-Voerman, 2013) in the context of reflective practice as well.

Research Method
The current study used sequential mixed method research (Tashakkori, A., & Teddie, C., 2010) where qualitative strand was the core component and the quantitative strand was a supplemental component of this study.

Qualitative Data

Affordances of multimodal web tools Affordances of multimodal versus single modal web tools

25 science and mathematics teachers have enrolled in TIN for the course 2013-2014. 11 teachers were picked on the basis of presence of all type of responses using the web tools. Stratified purposeful sampling scheme was used to select 3 participants out of 11 for the qualitative analysis. The qualitative component was analyzed using the prominent themes seen across all tools used in the online teacher induction program. Visual representation of comparative matrix served the purpose of displaying the patterns.

Quantitative Data
A five point Likert scale post survey comprising of 20 items was administered electronically. Convenience sampling scheme was used to select the sample size. 9 out of 11 participants responded to the survey, therefore all the respondents were included. Items were about tools that were used in TIN for reflecting on teaching practices. The quantitative component was represented using mean and standard deviation (Table 1) displaying the responses for each of the four tools for reflection-on-action. The reflection-on-action framework helped to interpret from both qualitative and quantitative data sets to come to an integrative conclusion.

Conclusions & Implications

Findings
◆ Preliminary findings indicated various affordances of web 2.0 tools.
◆ Flipgrid offered greater affordances among all tools due to its multimodality.
◆ Reflective journal was highlighted as a very significant and unique characteristic of “safe” and “private” space for reflection. Whereas, videoANT provided reliable opportunities of reflecting on classroom practices while in an online environment.
◆ Web Tools facilitated participants in development of reflective practices from individual reflection to group discussions and again to individual reflection.

Conclusions
◆ Role of online learning environments to promote reflective practices (McFadden, Ellis, Anwar, & Roehrig, 2014) is evident by further exploring each online tool in depth.
◆ The web 2.0 tools used in this study suggest exposing participants to multiple modes of collaboration with peers as well as for individualized thought processing leverage affordances to support transformation of beginning teachers into reflective practitioners.

Implications
◆ This study may serve teacher educators to learn more about developing online mentoring programs and particularly the integration of multimodal web 2.0 tools in developing and maintaining online learning communities.
◆ These tools offer affordances not only for working with beginning teachers but in any pre-service or professional development setting.

Table 1

<table>
<thead>
<tr>
<th>Survey Items</th>
<th>Flipgrid</th>
<th>Reflective Journal</th>
<th>Discussion Forum</th>
<th>VideoANT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>4.00</td>
<td>4.77</td>
<td>4.00</td>
<td>4.22</td>
</tr>
<tr>
<td>SD</td>
<td>0.50</td>
<td>0.50</td>
<td>0.50</td>
<td>0.83</td>
</tr>
<tr>
<td>User-friendly</td>
<td>4.22</td>
<td>4.44</td>
<td>4.44</td>
<td>4.77</td>
</tr>
<tr>
<td>Interactive or reflective*</td>
<td>3.77</td>
<td>0.83</td>
<td>0.77</td>
<td>4.33</td>
</tr>
<tr>
<td>Recommend future use</td>
<td>3.55</td>
<td>0.88</td>
<td>0.55</td>
<td>4.77</td>
</tr>
</tbody>
</table>

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