

How to assess and stimulate teachers from China's poor districts in their online professional development?

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Abstract: Teachers' online professional development is increasingly common. The practice of teacher online professional development has even spread to China's poor districts. However, the assessment and motivation strategies for teachers from those relatively poor districts had obtained little attention. In this paper, a combined method that using interview, a survey questionnaire, and an analysis of the online learning platform was used to make a clear understanding of these questions. The factors of teachers' backgrounds, as education background, age and professional title, were fully considered. There were 117 participants involved in this study. The research outcomes would help education authorities of China's poor districts take effective measures to promote the local teachers' online professional development.

Keywords: teacher professional development, assessment, stimulation, china's poor districts

1. Introduction

Teacher professional development (TPD) has attracted increasing interest in recent years. In order to become more competent, teachers should keep abreast of the creative and effective teaching methods, and be prepared to make change (Yang & Liu, 2004). However, the studies that focus on the teachers' motivation for professional development weren't enough to make a thorough understanding (Jansen in de Wal, den Brok, Hooijer, Martens, & van den Beemt, 2014), and teachers' background could largely affect the teachers' satisfaction with TPD programs and processes (Nasser & Shabti, 2010). At the same time, teacher's evaluation system plays a significant role in the processes of TPD (Delvaux et al., 2013). But teacher evaluation systems showed quite different emphases and characteristics (Flores, 2012). Moreover, the idea that taking advantage of the convenience of the network to promote TPD is getting more and more attention. However, what's the stimulation and evaluation mechanism of the TOPD in China's poor districts now? How to stimulate and assess them properly? The questions are worth exploring.

In this paper, we selected Qinglong Manchu Autonomous County as our research object based on the following considerations. First, the county we investigated should be a poor district that included in the national-level poor counties. Second, the county's local teachers have already launched a TOPD program for some time. At last, it is better that the county's education authorities take their responsibilities to promote these programs. Qinglong is a typical example that satisfied the research needs. It has been defined as a poor county by China authorities since 1986. It is still a poor district whose economical level quite underneath the national average. In addition, the local educational authorities had implemented a program of TOPD for two years to improve the teachers' teaching skills. In this program, the teachers can share their instructional designs and teaching reflections through the network. They can also analyze certain teaching cases cooperatively. The supporting platform is called 'Learning Cell', of which is developed by education faculty of Beijing Normal University. Most of the county's teachers have been involved in this program. Moreover, there is no difficulty to access the network for the county's teachers, they can access the network easily and operate the computer proficiently.

2. Literature review

With the unremitting growth of pedagogical and technological knowledge, the emergence and development of new web-based learning environments are increasingly common. For teachers, online communities of practices have become a critical approach for TPD (Gairín-Sallán, Rodríguez-Gómez, & Armengol-Asparó, 2010). However, there were few studies that focused on the factors which are related to teachers' motivation towards web-based learning (Biškupić, Lacković, & Jurina, 2015).

Teachers with higher motivation have more positive attitudes towards online professional development. But teachers' motivations towards the online professional development were nebulous. On the one hand, (Kwakman, 2003) found that teachers were always not make full use of the possibilities for their professional development. Lacking of stimulation strategies was a main reason according to the author's research. On the other hand, there were many motivation models for TPD. (Kao, Wu, & Tsai, 2011) classified the motivations of web-based professional development into six factors: personal interest, external expectations, occupational promotion, practical enhancement, social contact, and social stimulation. Five motivators as improving teaching, financial gain, collaborative opportunities, self and external validation were defined by (Hildebrandt & Eom, 2011). Moreover, teachers' background could largely affected the teachers' motivations with TPD programs and processes (Nasser & Shabti, 2010).

Except for stimulating teachers in online professional development, how to assess the teachers' performance is also very important. As identified by (J.D. Bransford, 2000), assessment is a core component for effective learning. There were some important instruments such as peer assessment, self assessment and portfolio to assess the teachers' performance in their professional development, but these summative assessments aimed at understanding teacher learning. Comparatively, formative assessment focus on the issue of promoting teacher learning and professional development. Providing feedback timely, formative assessment supports the teachers to close the gap between where they are and what they are aiming for (Tillema, 2010). However, summative assessment still be praised highly with formative assessment getting rarely attention despite its crucial role in promoting learning (N. Pachler, 2010). The situation should be changed in TOPD, for the learning process can be recorded and analyzed easily by the learning platform.

All of these studies lay the foundation of further research. To step further, the main goal of this paper is to find the proper methods or strategies to assess and stimulate teachers that from China's poor districts for their online professional development.

3. Method

3.1 Participants

The participants consisted of 117 Qinglong teachers that from thirty schools. According to the teacher's education background, 61 teachers graduated from junior colleges, 54 teachers graduated from universities, and 2 people graduated from senior high school. Considering the small number of the samples graduated from senior high school, the factor of education background of senior high school was not discussed in this paper. In terms of the teachers' age, there were 19 people that younger than 25. There were 63 teachers whose ages range from 26 to 35. Teachers aged 36-45 were 31. And there are 4 teachers that above 45 years old. Due to a stratified sampling, the sample's age distribution was broadly in line with the county teachers' age distribution. In terms of the teachers' professional titles, 73 teachers had a junior title, 31 teachers had a medium title and 13 people owned a high title. It was an approximately right reflection of the teachers' titles distribution of the county.

3.2 Procedure

The research procedure is illustrated in Figure 1. In order to make a clear understanding of the evaluation and stimulation methods of the TOPD, several interviewing were conducted to gather information. Concretely, there were ten teachers, three educational officers that in charge of the TOPD and three platform developers to be interviewed separately. A draft result of evaluation methods and incentive strategies in the TOPD was found out. Then a survey questionnaire was elaborately designed.

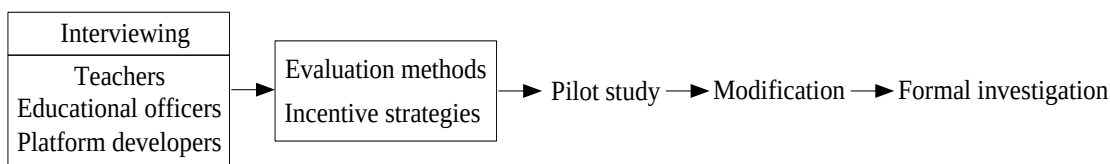


Figure 1. The procedure of the research

A pilot study was carried out to evaluate the effectiveness of the questionnaire. The main purpose of the pilot study was to check out the integrity of the evaluation methods and incentive strategies. Twenty teachers participated in the pilot study to finish the questionnaire. Base on the outcomes of the pilot study, the questionnaire was modified.

The final evaluation methods reflected in the questionnaire were:

- The cumulate time and frequency every month
- The quality and quantity of the instructional design
- The number of the instructional designs that one teacher participated
- The times as a group leader or organizer
- The times of preparing discussion materials

The incentive strategies were listed as following.

- The qualification of introducing experience and making exhibitions to other teachers
- Praising publicly by the county's education authority
- Issuing certificates
- Receiving professional development for themselves

Lastly, a formal investigation was conducted. Teachers that had been elaborately chosen should complete the survey questionnaire separately. The questionnaires were collected and the results were analyzed. The Cronbach's alpha of the questionnaire was 0.770.

4. Results

4.1 Assessment

4.1.1 Teacher's Education background

Independent t-test was performed to identify if there were significant differences between teachers graduated from junior college and those from university in regard to the assessment methods. Independent t-test indicates that there was no significant difference between teachers graduated from junior college and those from university.

4.1.2 Teacher's Age

Table 1 indicates that significant differences were existed among the four periods (teacher's age is below 25, between 26 and 35, between 36 and 45, and over 45 years old, moreover, the four age periods were correspondingly represent by A, B, C and D) in regard to the assessment methods. When taking 'the cumulate time and frequency every month' as an evaluation method, Post hoc Tests indicated that there was a significant difference between the A period and C period. A significant difference between the A period and C period was also existed when the assessment came to 'the times as a group leader or organizer'. Post hoc Tests also indicated that there was a significant difference between the B period and C period when the assessment strategy is based on the number of the instructional designs that one teacher participated.

Table 1: One-Way Analysis of Variance Summary Table of Different Teachers' Ages on Assessment

	SS	MS	F(3 113)	p	Post Hoc
1 The cumulate time and frequency every month	15.35	5.12	3.18	0.027*	A>C*
3 The number of the instructional designs that one teacher participated	15.87	5.29	4.21	0.007*	C>B*

4 The times as a group leader or organizer	15.10	5.03	2.81	0.043*	A>C*
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*p<.05, **p<.001

4.1.3 Teacher's Professional title

One-Way analysis of variance was performed to identify if there was a significant difference among teachers having different professional titles in regard to the assessment methods. The result of analysis indicates that there was no significant difference among teachers with different titles.

4.2 Stimulation

4.2.1 Teacher's Education background

Table 2 indicates that there was a significant difference between teachers graduated from junior college and those from university when the incentive strategy was 'praising publicly by the local educational authority', $t(115) = 2.165$, $p < 0.05$. When the strategy came to 'praising publicly by the local educational authority', the mean score of teachers graduated from junior college was 2.72, and the mean score of teachers graduated from university was 2.19.

Table 2: Comparison of the Effect of teacher's education background on Stimulation

Stimulation	Graduated from junior college		Graduated from university		df	T	Sig.(2-tailed)
	M	SD	M	SD			
3 Praising publicly	2.72	1.43	2.19	1.20	113	2.165	0.032*

*p<.05, **p<.001

4.2.2 Teacher's Age

Statistically significant differences were found among the four age periods in regard to the incentive methods. Table 3 indicates that significant differences were existed when the stimulation methods are making exhibitions ($F(3,113) = 2.76$, $p = 0.045 < 0.05$) and issuing certificates ($F(3,113) = 5.36$, $p = 0.002 < 0.05$).

Post hoc Tests indicated that there was a significant difference between B period and C period when the stimulation method was 'making exhibitions'. When considering the stimulant method of 'issuing certificates', Post hoc Tests indicated that there was a significant difference between the A period and C period. Post hoc Tests also indicated that there was a significant difference between B period and C period. The mean score of the A period was 4.53, the mean score of B period was 4.43, and the mean score of C period was 3.61.

Table 3: One-Way Analysis of Variance Summary Table of Different Teachers' Ages on Stimulation

	SS	MS	F(3 113)	p	Post Hoc
1 Making exhibitions	13.43	4.48	2.76	0.045*	B>C*
2 Issuing certificates	16.14	5.38	5.36	0.002*	A>C* B>C*

*p<.05, **p<.001

4.2.3 Teacher's Professional title

Table 4 indicated that there was a significant difference among the three types of professional titles when the stimulation method is issuing certificates ($F(2,114) = 3.33$, $p = 0.039 < 0.05$). Concretely, Post hoc Tests indicated that a significant difference was existed between teachers having a junior professional title and those having a high professional title.

Table 4: One-Way Analysis of Variance Summary Table of Different Teachers' Professional Titles

	SS	MS	F(2 114)	p	Post Hoc
2 Issuing certificates	7.15	3.58	3.33	0.039*	Junior>High*

*p<.05, **p<.001

5. Discussion and conclusion

5.1 Choosing proper assessment methods according the teacher's age

The study clearly illustrated that there was no significant difference between teachers graduated from junior college and those from university with respect to the assessment methods. The teachers' professional titles also have no disparity in regard to the assessment methods. But Table 1 indicated teacher's age has a particular effect on some assessment methods. The teachers less than 25 years old preferred the assessment method of 'the cumulate time and frequency' than the teachers whose ages range from 36 to 45. Post interviews revealed that teachers less than 25 years old had plenty of time in addition to working time. Comparatively, teachers aged 36-45 must spend a lot of time handling family affairs. As digital natives, teachers that younger than 25 were used to stay online.

Additionally, the teachers less than 25 years old were more inclined to the assessment of 'the times as a group leader or organizer' than the teachers whose ages range from 36 to 45. The teachers whose ages range from 36 to 45 were more inclined to the assessment method of 'the number of the instructional designs that one teacher participated' than the teachers whose ages range from 26 to 35.

5.2 One's professional development is the best stimulant method

Generally, the teachers were more concerned about personal professional development than the other stimulant methods. This finding was consistent with (Gorozidis & Papaioannou, 2014), who argued that teachers' autonomous motivation was more important than the controlled motivation. Teachers were driven by their personal desire when participating web-based professional development (Kao et al., 2011). There was no distinction for teachers having different education background or professional titles towards this finding. There was also no difference when taking the teacher's age into consideration. It's not the external stimulant methods that playing the dominant role but one's professional development does.

5.3 Using different strategies to stimulate teachers that having different education backgrounds, ages or professional titles

The study found that there was a significant difference between teachers graduated from junior college and those from university when the incentive strategy was 'praising publicly by the local educational authority'. Teachers graduated from junior college were more willing to be praised by the education officers than teachers graduated from university. This result could be explained by the common bias in China's society that teachers graduated from junior colleges were less qualified than the teachers graduated from universities. Interviewed afterwards, teachers who graduated from junior colleges were also somewhat admitted their shortcomings of education backgrounds. For proving, they were more desired to be approved by the authorities.

Age differences in motivational issues have always been highlighted by researchers (R. Chouinard, 2007). But this study was not consistent with (Kao et al., 2011), whose results revealed that the teachers' motivation toward web-based professional development is not significantly different across ages. When considering the incentive strategy of issuing certificates, teachers that younger than 25 had strongest desire to win certificates among the four teacher groups. Teachers whose ages were range from 26 to 35 took the second place. Teachers aged 36-45 had the least intention to strive for certificates. Moreover, Table 4 indicated that the teachers with a junior title were more willing to win certificates than the teachers having a high title. In China, teachers' salaries and welfare were closely connected with teachers' professional titles. Teachers' titles reflect certain teaching levels. However,

teacher's age and certificate number were two major factors in the teacher's title assessment system (Gang, 2012). The older teachers hold an age advantage at least, making the incentive strategies of issuing certificates less attractive. To make up for age shortcomings, teachers relatively young had strongest desire to win certificates. Due to the importance of certificates in teacher's title assessment, it was understandable that teachers with a junior title were more willing to win certificates than the teachers having a high title.

Teacher's age also had an impact on the implication of the incentive method of introducing experiences and making exhibitions. It's an effective incentive method for teachers aged 26-35 to let them introduce experiences and make exhibitions to other teachers. Teachers aged 26-35 had the strongest desire to this strategy among the whole participants. Teachers in this age span had accumulated some teaching experiences, and they were more willing to show and share.

These findings have a number of implications for the practice of online professional development, in particular for the China's poor districts. Firstly, the effect of promoting the teachers' professional development plays a substantial role in the programs of online professional development, thus the education authorities and platform developers should focus on the learning content or function design more. Secondly, Education authorities in China's poor districts should take various and targeted measures to assess and stimulate teachers that having different education backgrounds, ages and professional titles.

References

- Biškupić, I. O., Lacković, S., & Jurina, K. (2015). Successful and Proactive e-learning Environment Fostered by Teachers' Motivation in Technology Use. *Procedia - Social and Behavioral Sciences*, 174(0), 3656-3662. doi: <http://dx.doi.org/10.1016/j.sbspro.2015.01.1086>
- Delvaux, E., Vanhoof, J., Tuytens, M., Vekeman, E., Devos, G., & Van Petegem, P. (2013). How may teacher evaluation have an impact on professional development? A multilevel analysis. *Teaching and Teacher Education*, 36(0), 1-11. doi: <http://dx.doi.org/10.1016/j.tate.2013.06.011>
- Flores, M. A. (2012). The implementation of a new policy on teacher appraisal in Portugal: how do teachers experience it at school? *Educational Assessment, Evaluation and Accountability*, 24(4), 18.
- Gairín-Sallán, J., Rodríguez-Gómez, D., & Armengol-Asparó, C. (2010). Who exactly is the moderator? A consideration of online knowledge management network moderation in educational organisations. *Computers & Education*, 55(1), 304-312. doi: <http://dx.doi.org/10.1016/j.compedu.2010.01.016>
- Gang, W. (2012). Studying on setting of the chief senior titles for primary and secondary school teachers. *Hangzhou Normal University*.
- Gorozidis, G., & Papaioannou, A. G. (2014). Teachers' motivation to participate in training and to implement innovations. *Teaching and Teacher Education*, 39(0), 1-11.
- Hildebrandt, S. A., & Eom, M. (2011). Teacher professionalization: Motivational factors and the influence of age. *Teaching and Teacher Education*, 27(2), 416-423. doi: <http://dx.doi.org/10.1016/j.tate.2010.09.011>
- J.D. Bransford, A. L. B., R.R. Cocking. (2000). *How people learn: brain, mind, experience, and school (expanded ed.)*. Washington: National Academy Press.
- Jansen in de Wal, J., den Brok, P. J., Hooijer, J. G., Martens, R. L., & van den Beemt, A. (2014). Teachers' engagement in professional learning: Exploring motivational profiles. *Learning and Individual Differences*, 36(0), 27-36. doi: <http://dx.doi.org/10.1016/j.lindif.2014.08.001>
- Kao, C.-P., Wu, Y.-T., & Tsai, C.-C. (2011). Elementary school teachers' motivation toward web-based professional development, and the relationship with Internet self-efficacy and belief about web-based learning. *Teaching and Teacher Education*, 27(2), 406-415.
- Kwakman, K. (2003). Factors affecting teachers' participation in professional learning activities. *Teaching and Teacher Education*, 19(2), 149-170. doi: [http://dx.doi.org/10.1016/S0742-051X\(02\)00101-4](http://dx.doi.org/10.1016/S0742-051X(02)00101-4)
- N. Pachler, C. D., Y. Mor, H. Mellar. (2010). Formative e-assessment: Practitioner cases. *Computers & Education*, 54, 715-721.
- Nasser, F., & Shabti, A. (2010). Satisfaction with professional development: Relationship to teacher and professional development program characteristics. *Procedia - Social and Behavioral Sciences*, 2(2), 2739-2743. doi: <http://dx.doi.org/10.1016/j.sbspro.2010.03.406>
- R. Chouinard, T. K., N. Roy. (2007). Relations among competence beliefs, utility value, achievement goals, and effort in mathematics. *British Journal of Educational Psychology*, 77(3), 17.
- Yang, S. C., & Liu, S. F. (2004). Case study of online workshop for the professional development of teachers. *Computers in Human Behavior*, 20(6), 733-761.