TASK RELEVANCE
IN THE DESIGN OF ONLINE PROFESSIONAL DEVELOPMENT
FOR TEACHERS OF ELLs: A Q Methodology Study

Linda J. COLLINS, Ph. D.
Xin LIANG, Ph. D.
The University of Akron
Akron Ohio, USA

ABSTRACT

Online professional development (oPD) for teachers should focus on designing web-based learning opportunities that help practicing educators solve the tough problems of practice when working in their schools. Technology, pedagogy, and content knowledge can be integrated in the design of online professional development modules to enhance task relevance for maximum learning and transformation. The purpose of this study was to learn which tasks in an online professional development module were ranked by in-service educators as relevant to their work with English language learners (ELLs). Using Q methodology, the researcher asked participants to rank the relevancy of 36 online tasks from an online professional development module designed and developed at an American university. Participants used a -5 to 5 forced distribution to rank online activities from "Least relevant to my work with ELLs" to "Most relevant to my work with ELLs" followed by a semi-structured interview to explain their decisions. After data analysis, two factors emerged, indicating that participants' perceptions on task relevance differed by professional roles and educational settings. The participants also favored didactic online tasks over interactive tasks. The findings from the oPD participants' responses have the potential to serve as the basis for future online professional development design and for planning other relevant activities to be applied to the e-learning environment.

Keywords: Online professional development, English language learners, Q Methodology, relevance, instructional design.

INTRODUCTION

Teachers of English language learners (ELLs) have specified that they need intensive professional development to equip them with second language theory and instructional skills to ensure quality instructional practices and enhance their levels of confidence in teaching ELLs (Karabenick & Noda, 2004). However, many teachers with ELLs in their classes have not been offered professional development opportunities. Compounding the issue, the in-service teachers also reported that even though they were receiving professional development about working with ELLs, they did not find it useful due to poor planning by presenters, lack of ELL knowledge of presenters or a disconnect between teachers' needs, their ELLs' needs, and what was presented (Gándara, Maxwell-Jolly and Driscoll, 2005).

268

With the rapid growth of technology integration, online teacher professional development (oPD) can offer more accessible, flexible, and applicable opportunities to respond to inservice teachers' PD needs. This cry for quality professional development opportunities raises the importance of providing content relevancy in the design and implementation of ELL teacher professional development in general, and oPD in particular.

For teachers of ELLs, the relevance of professional development is particularly complex because of the multi-dimension skills and tasks related to preparedness for cultural sensitivity, as well as reflection upon and understanding of their own educational background being so different from that of their ELLs. These essentials must be considered alongside the integration of technology with pedagogy and content knowledge to teach effectively in classrooms. For professional development designers and school leaders, it is very important to learn what tasks are viewed as relevant from the ELL teachers' own perspectives. By knowing what content and tasks were perceived to be relevant, professional development designers will be able to determine if the teachers' subjective opinions and feedback matched course developers' and designers' intention to provide a relevant professional development experience. Whitsett, Roberson, Julian, and Beckham (2007) also noted that it was clear that practicing teachers know best what is conducive to good practice and to good professional relationships in the schools. Therefore, they saw benefits in seeking teachers' input into professional development planning "frequently and formally".

LINKS BETWEEN RELEVANCE AND THE EFFECTIVENESS OF PROFESSIONAL DEVELOPMENT

Like other adult learners, practicing teachers are self-motivated, self-directed, and responsible for their learning. Their previous learning and life experiences serve as funds of knowledge that become a rich learning resource. They know what they need in order to be successful in meeting their own professional development demands, and do what they can to be open to the necessary learning. For this reason, they are task oriented in their learning, eager to see real applications, and seek relevance about what they learn. Guskey (2003) has defined relevance as addressing learners' specific needs and concerns. McCombs and Vakili (2005) have described relevant professional development as opportunities to bring about paradigm change in the way of teaching. Considered together, these features readily fit into descriptors attributed to effective professional development. Adult learning and effective professional development center on concrete applications, rather than generalizations and theoretical abstractions.

They include strong characteristics of a learner centered environment as they also include collegiality and sharing, active learning, problem solving for the learner's life situations (Knowles, 1980), a spirit of coherence that ties learning to the learner's context, and sustained support and guidance (Garet, Porter, Desimone, Birman, & Yoon, 2001; Bransford, Brown, & Cocking, 2000). Regarding ELL content, teachers wanted to know more about the theory behind effective strategies so they would understand better how and why to use them. They also wanted to know more about reaching students at different proficiency levels and how to integrate ELL instructional techniques meaningfully into their current practice. Roy-Campbell (2012) also noted that content teachers could be particularly in need for high quality ELL preparation, given their high accountability in documenting student progress.

269

All teachers need to know basics of how to promote second language acquisition and vocabulary development while providing appropriate scaffolding for ELLs (Echevarria, Vogt & Short, 2008).

In many cases, even in the upper grades, ELLs have not been exposed to print literacy and due to their limited English language proficiency, they lack vocabulary necessary for academic success (Walker, Shafer, & Iiams, 2004). All of these, in turn, can impact their teachers' overall class scores. Without such basic information, along with information on the effect culture has upon learning at school, teachers often continue to consider ELLs to be deficient and hold low expectations for them (Roy-Campbell, 2012).

What a teacher of ELLs deems relevant in a professional development experience is strongly influenced by the context in which that teacher works and the amount of training in ESL methodology that individual has had (Rueda & García, 1996). Therefore, the specific areas of need and relevance for professional development must be identified, targeted, and then provided to teachers of ELLs. To understand what content tasks the teachers of ELLs feel relevant in their professional development is an essential step to guide the design and implementation of quality professional development. This step is particularly important for quality professional development delivery in the online format, which is becoming prevalent because of the wide range of accessibility, efficiency, and flexibility to teachers' individual needs.

THE ROLE OF RELEVANCE IN ONLINE PROFESSIONAL DEVELOPMENT OF ELL TEACHERS

Well designed online teacher professional development provides teachers with readily available, accessible, and affordable opportunities to learn how to support ELLs in their mainstream classrooms. oPD allows for the incorporation of established characteristics of effective group professional development and the individualization of the experience to meet the needs of teachers in particular instructional contexts. It can provide essential knowledge and skills for working with the growing numbers of culturally and linguistically diverse learners. The opportunities available through online professional development can take advantage of the technology to engage teachers of ELLs more deeply (Bonk & Cummings, 1998).

However, building an effective online module is a complex task. Developing online professional development is more than translating a face to face experience to an electronic version. All of the features of effective professional development such as focus on individual, incremental steps, enhancement of content, technological and pedagogical knowledge, and personal feedback are uniquely appropriate to be integrated in the online learning environment (Guskey, 1991; Koehler & Mishra, 2005). Quality oPD must present a combination of essential elements from best practices for teacher education, adult learning and online learning (King, 2002). As oPD provides tremendous flexibility for self-directed, and self-regulated learning, perceptions held by teachers of ELLs about what instructional tasks and professional development content are relevant to meet the specific instructional needs are directly linked to their professional development experiences and the willingness to bring about their newly learned knowledge and skill. The purpose of this study was to investigate what online learning activities were perceived to be relevant by 13 inservice educators who participated in an oPD session. The research question that guided the study was:

270

What are participants' perceptions of the instructional design regarding the relevance of the online tasks in "Supporting ELLs in the Classroom" (SELC) online professional development module?

METHOD

The researchers in the study applied Q methodology in order to have the participants rank their perceptions about the relevancy of the online PD tasks. Q methodology was chosen for this study to reveal the multiple views on the relevancy of the SELC online module along with consensus among those views. This methodology provided the vehicle for uncovering and identifying the range of participant opinions regarding the relevance of the specific tasks designed in the online module (Brown, 1991; Brown, 2008; Ramlo, McConnell, Duan & Moore, 2008). Unlike surveys and Likert scales, sorting ensures that the participants make explicit choices about the ranking of each sort item relative to the other items and discriminate among them in a way they would not do otherwise (Brown, 2008; Corr, 2001). Using a forced distribution procedure in the sorting process limits the number of items that participants can place in each ranking level.

In this study, participants ranked 36 items into a symmetrical distribution to prioritize among the sort items for the research question. The Q sorts and follow-up explanations of specific rankings provided insights into the various ways that many different viewpoints were represented among participants (Brown, 1991; Corr, 2001). Figure 1 presents the Q-sort distribution grid, ranging from the least relevant to the most relevant in an array of specific tasks.
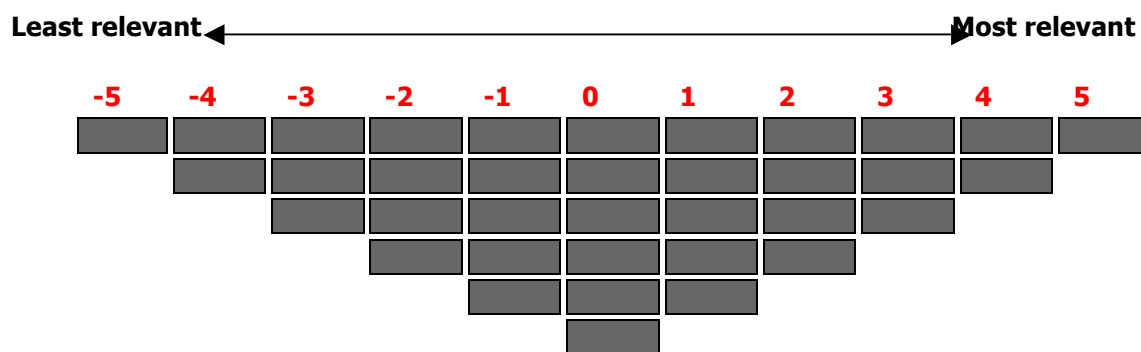
Least relevant ←——————————————————————→ Most relevant

| -5 | -4 | -3 | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |

Figure: 1.
Q sort distribution followed by each participant

Participants and Q Sort Development

The participants in the study were 13 female educators working with grades K-12 students and teachers. In addition, they were trained online facilitators and had completed all of the online tasks included in the study. Four were classroom teachers and nine were literacy coaches or professional developers in the local school district. Their years of experience in education ranged from 14 to 41 years. Seven participants worked in urban schools, four in suburban districts, and two in rural school districts. The amount of formal, organized training for working with ELLs ranged from none (four persons) to personal research (three persons) to one or two workshops or sessions at a conference (six persons).

271

Participants reviewed the module for two purposes: to understand better how to meet the needs of ELLs and also to familiarize themselves with the module itself so they could facilitate it with others in the future. From among a possible 97 online screen shots developed for this module, 36 screen shots were selected to be sort items. The screen shots, depicting individual course tasks, were ranked by participants as to how relevant each was in their work with ELLs. The relevance of the oPD was defined as the degree to which participants felt the online module prepared them to be more effective and knowledgeable in their work with ELLs. The selection of tasks reflected the breadth of module tasks as presented in the oPD with a variety of relevant activities. Some items were transmissive screen shots, requiring participants to read the course learning goals and read content information, or interpret a variety of graphics and charts showing demographics about ELLs across the country and ELL student characteristics. A number of screen shots in the sort represented videos viewed for different purposes. Some videos featured content experts explaining concepts regarding characteristics of ELLs, second language acquisition theory, or principles for ELL instruction. Other videos highlighted students of different English proficiency levels or teachers modeling features essential to modifying instruction for ELLs. Some individual progress checks performed online by analyzing videos were also represented among the sort items. Figure: 2 shows an example of a sort item screen shot selected from the oPD module in this study.

Figure: 2
Sample sort item screen shot presented to participants to rank the level of relevance

Sort and Analysis Procedures

Each sort item bore a caption specifying the actual task required on that screen. The Q sort cards were randomly numbered from 1 to 36, to facilitate accuracy in recording final placement of each card in the sort distribution. Each screen shot was printed in color on an individual 4 X 6 card and sorted manually by the participant, following the distribution shown in Figure: 1.

Completing the Q sort allowed participants to provide their perspectives by sorting items into the forced distribution used for this study. With guidance from the researcher, participants sorted the cards and then explained their decisions through a brief semi-structured interview.

The researcher corresponded individually through e-mails and over the telephone to explain the study and carry out the sorts and interviews to the thirteen volunteers from different parts of the state.

Sorts and interviews were completed individually when the participant and researcher were on the phone together. At that time, the researcher asked the personal data questions and read the sorting directions and interview questions to the participants. With guidance from the researcher, participants sorted the cards and then explained their decisions through a brief semi-structured interview.

Then all the Q sorts were analyzed using the PQMethod software program (Schmolck & Atkinson, 2002), designed specifically to analyze sorts in Q Methodology studies, computing correlations among sorts. Factor analysis was conducted to show how participants grouped according to their sorts.

Principal component analysis was conducted as an initial solution to guide further analysis.

Then Varimax rotation was used for more focused factor iteration to allow final factor extraction, to group together participants with similar views regarding relevant online tasks.

RESULTS

Two factors were derived from the final Varimax factor extraction: Factor 1, "Relevance to Classroom Instruction," with emphasis on tasks related to interacting directly with students, such as charts with ELL characteristics to be used to evaluate students, or screens related to instructional modifications to be carried out with ELLs.

Factor 2, "Relevance by Building Background for Teaching ELLs" ranked highest those items useful to lay the groundwork to convey the module's purpose and the need for learning how to meet the needs of ELLs.

Tasks ranked most relevant on this factor included the growth rate of ELL student populations, their top languages; definitions of ELL related terms, a list of professional resources, and the course learning goals. The factor loadings are presented in Tabl:e 1.

273

Table: 1
Factor Loadings on the Relevance of Online Tasks to Participants' Work

Sorter #	QSORT Identifier	Factor Loadings 1 - Relevance to the Classroom	2 - Relevance through Building Background
1	CU	0.60	
4	TS	0.76	
5	CS	0.48	
8	TS	0.63	
9	TR	0.60	
10	CS	0.66	
12	CU	0.61	
2	TU		-0.60
3	CU		0.49
7	CU		0.60
11	CR		0.80
13	CU		-0.56

Note: Q-Sort identifiers C or T indicate professional role (Coach or Teacher), instructional setting S, U, or R (Suburban, Urban, Rural). For example TS indicates that the sorter is a teacher in a suburban school, and CU indicates that the sorter is a coach in urban school.

Seven participants (1, 4, 5, 8, 9, 10, and 12) loaded on "Relevance to Classroom Instruction," ranging from .76 to .48. Five participants (2, 3, 7, 11, and 13) found "Relevance by Building Background for Teaching ELLs," with factor loadings ranging from -.60 to .60. One participant did not load to either factor.

Two Participants loaded negatively to Factor 2, indicating that their sorts were more or less mirror images of others on that same factor. A closer examination of their individual sorts and interview comments, however, indicated their shared view of relevance through building background.

The data results indicated that most of the practicing teachers (3 out of 4) in the study loaded on factor 1, "Relevance to Classroom Instruction." The literacy coaches, with only one exception, loaded on Factor 2, "Relevance through Building Background for Teaching ELLs."

Additionally, most of the participants who found "Relevance to Classroom Instruction" worked in suburban and rural school settings, while all participants who found "Relevance by Building Background for Teaching ELLs" worked in urban school settings.

Highest and Lowest Ranked Tasks
The most relevant online tasks were those that organized and presented information about ELLs' characteristics and instructional modifications for classroom instruction. Some of the highest ranked tasks included "Read characteristics of English learner types" and "View video about 3 academic types of ELLs." Least relevant tasks included several that required participants to compare their own responses on comprehension activities to correct responses. Table: 2 present the highest and lowest ranked tasks for "Relevance to Classroom Instruction."

Table: 2:
Highest/lowest Ranked Tasks-"Relevance to Classroom Instruction"

Rank	Item	Item #
+5	Read characteristics of English learner types	5
+4	Read characteristics of language proficiency levels	21
+4	View video about 3 academic types of ELLs	4
+3	Relate features to ELL Instructional Principles	35
+3	Read, view video about Comprehensible Input	11
+3	Examine ELL writing sample, compare to characteristics	9
-3	Compare responses to research on second language acquisition	2
-3	View graph of top languages of Ohio ELLs	29
-3	Indicate agreement / disagreement with statements	28
-4	Compare response to feedback on instructional principle	19
-4	Compare total student growth to ELL student growth	3
-5	Compare responses to key – student types	31

When interviewed about why they ranked the tasks this way, participants explained, "I just think it spells out the three principles you need to understand… I thought this would be good … from the get-go, to help with instructional practice with all children, not just ELLs." "All good lessons should have these."

"I thought it [characteristics of learner types downloadable chart] was full of really important information and I feel it would be something teachers would refer back to and revisit."

"That's something I have actually printed out and … actually it is in my lesson plan book."The least relevant tasks to this classroom related factor were those connected to background knowledge on ELL research.

For example a graph comparing [the state]'s ELL growth to U.S. ELL growth and a graph comparing the ELLs' top home languages were ranked -4 and -3 respectively. As one participant explained her ranking the least relevant items "these graphs would be for my own background building.

I might use it, but it's not what comes to the forefront. The graphs would not be something I could see myself using with the kids."

As Table: 3 presents, most of the highest ranked tasks for "Relevance to Classroom Instruction of ELLs" factor were ranked as least relevant tasks for "Building Background on Teaching ELLs" factor.

The majority of the highly relevant tasks for Factor 2 were those that involved interacting with details such as content related terms, the course description and learning goals, and resources related to ELL instruction.

Table: 3
Highest/lowest Ranked Tasks"Relevance through Building Background"

Rank	Item	Item #
+5	View graph of top languages of Ohio ELLs	29
+4	Compare total student growth to ELL student growth	3
+4	Read definitions of terms related to ELL instruction	26
+3	Read course description, definition of ELL	1
+3	Read course learning goals	13
+3	Read about resources related to field of ELL instruction	27
-3	Compare response to feedback on instructional principle	19
-3	Read case study & instructions for completing Action Plan	24
-3	Select ELL instructional principle modeled in video	18
-4	Compare response to feedback on writing sample	34
-4	Compare responses to feedback on Comprehensible Input	17
-5	Design instructional modifications for case study	12

For example Task # 3 "Compare total student growth to ELL student growth" and Task # 26 "Read definitions of terms related to ELL instruction" were ranked very high for those loading positively. Tasks for designing an instructional action plan, reading about designing the action plan, and watching a video to identify instructional principles modeled in the online module were ranked as having less relevance for those same Factor 2 participants, "Building Background On Teaching ELLs."

Those loading negatively also emphasized tasks that helped build background, although instead of reading the information, they may have selected a different type of task to gain the information.

During the interview asking participants to explain their ranking decisions, some positive loading individuals responded "I had no background for either one of these data. I loved these graphs [Sort items 29 and 3] because I had no idea what languages were spoken in [this state]. I had no idea of the growth. So to me it was relevant. Because if someone says why are we learning this? I can say, 'because it's coming'." "The first thing I would be talking about would be the course development goals."

Another participant commented, the information "would be kind of astonishing for teachers to see," while others noted, "I thought this would be information that a district would need if they were planning to do a course around English language learners." Clarifying comments regarding rankings of negative loaders aligned their decisions to building background for teaching ELLs, "To me you have to have this in place - understanding what these myths are and what they aren't in order to really plan effectively for that student." "They're (the high ranked tasks) there as a reference. I can always look back on them … if I need it it's there."
Distinguishing Tasks

Some tasks perceived by Factor 1 participants to be highly "Relevant to Classroom Instruction" were rated oppositely by participants by Factor 2 participants who perceived "Relevance by Building Background for Teaching ELLs."

276

These specific tasks helped to distinguish between the two factors and demonstrated that they represented distinct opinions about the relevance of many of the same tasks represented in the Q sort. For example Task # 3, "Compare total student growth to ELL student growth" was ranked the as having low relevance (-4) by participants in "Relevance to Classroom Instruction," but was ranked high (4) by participants in "Relevance by Building Background for Teaching ELLs."

Table: 4 presents the distinguishing tasks between the two factors. When tasks were ranked very differently between the two groups of participants, tasks related directly to work with students were ranked high by Factor 1, (Relevance to Classroom Instruction) such as tasks that focused upon student characteristics, or ranked low by Factor 2 (Relevance by Building Background for Teaching ELLs), such as applying the major concepts of the module by designing instructional modifications for a case study presented in the module. Other items that distinguished the two factors included reading definitions for terms related ELLs and viewing a video about different academic types of ELLs.

Table: 4
Distinguishing tasks between Two Relevance Factors

Factor 1 Ranking	Factor 2 Ranking	Task	Item #
5	2	Read characteristics of English learner types	5
4	0	View video about 3 academic types of ELLs	4
-5	0	Compare responses to key – student types	31
-4	4	Compare total student growth to ELL student growth	3
0	-5	Design instructional modifications for case study	12
0	3	Read about resources related to field of ELL instruction	27
-1	4	Read definitions of terms related to ELL instruction	26

CONCLUSIONS

With a strong learner-centered design as a focus, the online module developers and designers in this study organized a sequence of online activities to present relevant tasks and content to 13 study participants to evaluate the level of relevance to their professional needs.

Drawing upon research on what teachers of ELLs deem relevant and necessary, the content for an online module was developed, with activities intentionally designed to reflect varied topics of relevance to the online learners interacting with the professional development.

The results of participants' rankings for the relevant tasks in the Q Methodology study indicated that the perceptions on task relevance in the online professional development module "Supporting ELLs in the Classroom" differed by participants' professional roles and educational settings. Practicing teachers tended to rate the tasks on applications of classroom instructional techniques to be more relevant.

These same practicing teachers seemed less interested in tasks indirectly related to their classroom work, while literacy coaches tended to rate these tasks as more relevant.

For example, the tasks rated high by the literacy coaches were the ones that helped build background knowledge about teaching ELLs, ELL instructional principles, and providing useful resources or case studies for helping modify instruction for classroom teachers. Participants working in suburban and rural school settings tended to rank the sort items related to classroom instruction as more relevant, while participants working in urban school settings tended to rank the content and tasks related to building background knowledge about teaching ELLs more relevant.

Because the tasks and content were delivered online, the researchers noticed that design of the task screens was a consideration for both practicing teachers and literacy coaches across all school types. The participants all ranked transmissive screens as more relevant, such as videos of experts telling information, printable downloads describing ELLs characteristics, or text screens relating information, regardless of whether they worked in rural, urban or suburban school settings. Many participants also tended to rank interactive screens lower, such as those giving feedback on selected responses to multiple choice questions that checked comprehension of content.

The differences of the perceived relevance between the two groups of participants confirmed that the educators who participated in online professional development represented different roles and approached the module for different purposes. The findings of the participants' perceptions on the level of relevance in this online SELC module have implications to guide future instructional design to improve the quality of oPD for educators of ELLs. Designers of oPD should keep in mind that in this study, what a teacher of ELLs found relevant was strongly influenced by the context in which she worked and the role she had in school (Rueda & García, 1996). What was perceived to be relevant by the classroom teachers may not be perceived the same way by others. This was particularly true for practicing teachers working in rural and suburban schools whose primarily role was to enhance ELLs academic achievement, as opposed to literacy coaches, whose role might be somewhat different because their instructional audiences are not students, but teachers of ELLs or instructional leaders. In their role as literacy coaches, they need to guide teachers in instruction by presenting the "why" along with the "what" of instructional modifications, and help teachers to build essential background knowledge about teaching ELLS. For the literacy coaches, the knowledge and research regarding ELL background information, the trend about ELLs' language acquisition in urban settings would be more relevant. Considering these different needs, the SELC online professional development module could be modified to provide more meaningful and relevant tasks and content to meet the professional development needs of different participants.

The perceptions of relevance to different content and tasks in this study also imply that not all participants in an online professional development class are necessarily teaching ELLs in classroom settings alone. Many professional development participants play duel roles in their schools and school districts given the limited school budget supporting ELLs. They may be both teachers for ELLs and literacy coaches for the whole school district. Online instructional design needs to take into consideration these situations and the complex professional development needs that result. When designing oPD, developers and designers must acknowledge that the convergence of technology, pedagogy and content knowledge (TPCK) as outlined by Koehler and Mishra (2005) must occur in module development and design.

The experience in designing oPD "shows that participants' thinking about technology integration gets increasingly complex with time" (p. 137), and over time designers' thinking should also reflect an evolution in this relationship. Mishra and Koehler's (2006) TPCK "model of technology integration in teaching and learning argues that developing good content requires a thoughtful interweaving of all three key sources of knowledge: technology, pedagogy, and content" (p. 1029).

This complex relationship among technology, content, and pedagogy requires designers of online courses to consider how these three elements must be considered and effectively integrated to meet the unique needs of all learners. Further, technology integration in the design needs to take the overlapping areas of technology pedagogical knowledge, and technology content knowledge into consideration to achieve more positive learning experiences. Cox and Graham (2009) suggest research should focus on how teachers acquire TPCK; specifically how they acquire that specialized knowledge and what types of activities, training, or peer learning might contribute to this knowledge development.

It is difficult, however, to design online learning opportunities that inform teachers and also help them to solve the tough problems of practice (Barab, Kling, & Gray, 2004). "It is necessary to look for not only the match or mismatch of technology uses with learning principles, but also its match or mismatch with learners and their diverse needs" (McCombs & Vakili, 2005, p. 1595). The perceptions and feedback from the participants in the study provided such insights that would guide the oPD designers and instructors in their curriculum design and instructional approaches.

BIODATA and CONTACT ADDRESSES of the AUTHORS

Linda J. COLLINS holds a Ph.D. in Curriculum and Instruction and is currently the Project Manager for a statewide evaluation of the Formative Instructional Practices professional development project, working through The University of Akron, in Ohio, USA. In addition to teaching English as a Second Language, her areas of expertise include teacher professional development, online facilitation, online course development, and Q Methodology. Dr. Collins has presented and published her studies locally, nationally, and internationally.

Linda J. COLLINS, Ph. D.
The University of Akron, Akron Ohio, USA
Phone: 330.612.4407
Mobile: 330.612.4407
Email: ljc9@uakron.edu

Xin LIANG is a professor in the Department of Educational Foundations & Leadership, College of Education at the University of Akron in Ohio, USA. She has Ph. D in research methodology, and teaches doctoral level courses of advanced program evaluation, advanced research design, data collection, and advanced statistics. Dr. Liang specializes in utilitarian evaluation paradigm and theory-based evaluation methods.

Xin LIANG, Ph. D.
The University of Akron, Akron Ohio, USA
Phone: 330.972.6921
Email: liang@uakron.edu

REFERENCES

Barab, S. A., Kling, R. & Gray, J. H. (2004). Designing for virtual communities in the service of learning. In S. Barab, R. Kling, & J. Gray (Eds.), *Designing for virtual communities in the service of learning.* (pp. 3-15). New York: Cambridge University Press.

Bonk, C. J. & Cummings, J. A. (1998). A dozen recommendations for placing the student at the centre of web-based learning. *Educational Media International*, 35(2), 82-89.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (editors). (2000). *How people learn: Brain, mind, experience, and school.* Washington, D.C.: National Academy Press.

Brown, S. R. (2008). *History and principles of Q methodology in psychology and social sciences.*

Brown, S. R. (1991). A Q-Methodology Tutorial. Retrieved from http://facstaff.uww.edu/cottlec/QArchive/Primer1.html on March 22, 2007

Corr, S. (2001). An introduction to Q methodology, a research technique. The British *Journal of Research Technique*, 64(6), 293-297.

Cox, S., & Graham, C. R. (2009). Diagramming TPACK in practice: Using an elaborated model of the TPACK framework to analyze and depict teacher knowledge. *TechTrends*, 53, 5. p. 60-69.

Echevarría, J., Vogt, M., & Short, D. (2008). *Making content comprehensible for English learners: The SIOP model.* Boston: Pearson Education, Inc.

Gándara, P., Maxwell-Jolly, J., & Driscoll, A. (2005). *Listening to teachers of English language learners: A survey of California teachers' challenges, experiences and professional development needs.* Santa Cruz: University of California, Center for the Future of Teaching and Learning.

Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F. & Yoon, K. S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal*, 38(4), 915-945.

Guskey, T. R. (1991). Enhancing the effectiveness of professional development programs. *Journal of Educational and Psychological Consultation,* 2(3), 239-247.

Guskey, T. R. (2003). What makes professional development effective? *Phi Delta Kappan,* 84(10), 748-751

Karabenick, S. A. & Clemens Noda, P. A. (2004). Professional development implicationsof teachers' beliefs and attitudes toward English language learners. *Bilingual Research Journal*, 28(1) 55-75.

King, K. P. (2002). Identifying success in online teacher education and professional development*. Internet and Higher Education*, 5, 231-246.

Knowles, M. S. (1980). My farewell address...Andragogy-No panacea, no ideology. *Training and Development Journal*, 34(8), 48-50.

Koehler, M. & Mishra, P. (2005). What happens when teachers design educational technology? The development of technological pedagogical content knowledge. *Journal of Educational Computing Research*, 32(2), 131-152.

McCombs, B. L. and Vakili, D. (2005). A learner-centered framework for e-learning. *Teachers College Record*, 107, 1582-1600.

Mishra, P. & Koehler, M. J. (2006) Technological pedagogical content knowledge: A framework for teacher knowledge. Teachers College Record. 108(6) 1017–1054.

Ramlo, S., McConnell, D., Duan, Z., & Moore, F. (2008). Evaluating an inquiry-based bioinformatics course using Q methodology*. Journal of Science Education and Technology,* 17(3), 219-225.

Roy-Campbell, Z. (2012). Meeting the Needs of English Learners. *Journal of Adolescent & Adult Literacy* 56(3), 186—188.

Rueda, R. & García, E. (1996). Teachers' perspectives on literacy assessment and instruction with language minority students: A comparative study. *The Elementary School Journal*, 96 (3), 311-332.

Schmolck, P. & Adkinson. (2002). PQMethod Manual. Retrieved from http://www.rz.unibw-muenchen.de/~p41bsmk/qmethod/pqmanual.htm

Walker, A., Shafer, J., & Iiams, M. (2004). "Not in my classroom": Teacher attitudes towards English language learners in the mainstream classroom. *NABE Journal of Research and Practice*, 2(1), 130—160.

Whitsett, G., Roberson, T., Julian, K. & Backham, L. (2007). First year teachers' reported levels of functioning on selected professional dispositions. *Education*, 128(1) 95-102.