
The Trainer's Application of Vygotsky's "Zone of Proximal Development" to Asynchronous Online Training of Faculty Facilitators

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Faculty members require training when they first learn how to teach in a specific online format. Such training introduces them to the technical features that will allow an exchange of information, discussions, and course materials and to how to use these features to advance student learning. Since online education can be defined and approached in numerous ways, several terms require definition to set the context for this paper.

"Online" education can mean asynchronous or no real-time interactions, synchronous or live simultaneous interactions, or a combination. Messages that students post independently at any hour of the day or night in response to discussion questions or topics are asynchronous; posts done in a Chat-Room in real-time with class members or the class as a cohort are synchronous. While typically used in live classroom situations, the term "interaction" can apply to both types of online formats because the response author writes with an intended reader in mind (faculty and classmates) where words are also meant to engage the reader in thinking and return response activities.

The term "faculty facilitator" denotes a faculty role for promoting learning in a student-centered environment; the faculty facilitator is responsible for sufficient course design and structure to help the student meet the objectives but there is less of a dominant teacher emphasis. A faculty facilitator is expected to address each student's learning needs and level of knowledge, attitudes, or skills consistent with the course objectives and promote learning through typed responses. A faculty facilitator might be viewed more as a "guide on the side" than as a "sage on the stage" (King, 1993). The administrator at the institution delivering the online education hires trainers with background and experience in the system to train such faculty facilitators in its use. The trainer is in essence the first leg of a relay of information from the trainer to the facilitator to the students that facilitator will eventually teach. In this paper, the trainer is presented only as training a group of prospective faculty facilitators in the asynchronous type of online learning.

The online trainer of faculty facilitators in asynchronous learning environments typically will have no prior interaction with facilitators in ways that might lead to establishing positive relationships for learning. The relationship usually starts "cold" and the length of trainer-facilitator interaction may be short. A goal of the trainer is to model good online teaching and learning practices, one of which is the establishment of positive relationships for learning in the new asynchronous environment. As noted in this paper, relationships will not be limited to personal interactions but also to relationships established within the learner relative to the course

content. Vygotsky's (1978) contributions to learning theory in his "Zone of Proximal Development (ZPD)" offer a framework for the trainer to use when working with faculty facilitators.

The purposes of this paper are to identify factors that influence the ZPD relationship and strategies that the online trainer can use to mediate this relationship in an asynchronous online environment consistent with Vygotsky's basic tenets. Table 1 depicts situations and strategies that apply these tenets to the learning relationship.

Table 1. Strategies that Trainers Can Use to Facilitate a Learning Relationship in the ZPD in an Asynchronous Online Environment

Situation	Strategies
When the trainer has initial contacts with the faculty facilitator	<ol style="list-style-type: none"> 1. Use a tone in writing that conveys an intent to engage the facilitator in activities that will connect prior learning with the construction of new knowledge, attitudes, and skills in the ZPD 2. Reiterate the availability of technical support as ongoing to reduce those stresses that may detract from the learning situation 3. Design initial tasks with an ease for accomplishment as encouragement and evidence that learning can occur
When the trainer notes that faculty facilitator posts are decreasing or focusing only on trainer responses	<ol style="list-style-type: none"> 1. Resist posting responses early in the discussions so that in-training faculty facilitators will respond to one another's posts as a means to remain primarily student-centered in the learning process 2. Assess the pattern of postings to determine reasons that discussions might have trailed off, e.g., the topic has been sufficiently covered and the trainer must add a new dimension to advance learning and keep the facilitators engaged in making connections, etc.
When the trainer notes that facilitator responses are not engaging peers in advancing progress toward objectives	<ol style="list-style-type: none"> 1. Remind the facilitators about the underlying format and purposes of responses to stimulate more critical thinking and accountability for group learning as a means of promoting accountability for group learning 2. Format responses to individual facilitator posts that model the desired activity, e.g., provide feedback that is supportive as well as constructively critical of ideas posed that represent an intellectual challenge to reconsider one's position, find an additional reference, or in some way use prior knowledge to connect to the new learning situation

<p>When the trainer notes that facilitator responses are not sufficiently addressed at the analysis, synthesis, and evaluation levels</p>	<ol style="list-style-type: none"> 1. Provide the scaffold of Bloom's <i>Taxonomy</i> through an online handout or Internet site to model how the facilitator should also be alert for needed learning materials to facilitate learning relationships 2. Post responses that model these higher levels of intellectual activity, e.g., post an analysis of a difficulty the group is having with a particular technology issue or a synthesis of the group's responses to a discussion question 3. Be explicit about how the facilitator's responses and directions to students influence how students will respond in turn, e.g., use of a challenging stance about a higher-order topic may yield more ZPD activity than vague "let's discuss this" type directions 4. Post announcements to the group that represent this type of intellectual "housekeeping" requesting their increased activity in order to keep the learning relationship moving in a positive direction
<p>When the trainers notes that a faculty facilitator does not respond to a question or idea that the trainer poses in a return post to that facilitator</p>	<ol style="list-style-type: none"> 1. Design discussion questions and exercises that require continually more advanced application of training materials in order to better evaluate movement in the ZPD 2. Use a summary paragraph approach following completed discussion questions that includes a range of acceptable responses that the facilitator might have posted in return to show desired learning 3. Use private communications and weekly feedback to encourage interactions with a specific facilitator
<p>When the trainer notes that a facilitator is not demonstrating the knowledge, attitudes, and skills consistent with the objectives</p>	<ol style="list-style-type: none"> 1. Use strategies suggested above in return responses that promote use of prior knowledge, e.g., "You have provided feedback to students in your live classroom. How can you adapt this to the online environment?"; that promote connections and advancement in the ZPD, e.g., "You said "x" in a recent post. Is there a research study that will substantiate this idea? How can you use that information to evaluate online discussion questions?" 2. Use private communications consistent with the sponsoring institution's guidelines to provide feedback 3. Provide thoughtful, constructive feedback weekly that includes further projections for progress
<p>When the trainer notes that discussions are drifting from the topic</p>	<ol style="list-style-type: none"> 1. Refocus the group, e.g., give direct reminders that the group is drifting with a post that gives the topic renewed direction 2. Suggest that a particular side topic can be discussed in the

	Chat-Room or other software feature
When the trainer notes that there are gaps in learning as shown in responses	<ol style="list-style-type: none"> 1. Use instructional strategies that work well in live classrooms to scaffold learning to "keep" the facilitators in the ZPD learning relationship, e.g., Word documents that contain class notes, mini-lectures, references to Internet links, online handouts 2. Be specific in identifying a portion of a reference that takes the facilitator directly to the material needed rather than suggesting an entire faculty handbook chapter or other extensive reference 3. Use questioning techniques that provide specific directions for responses so that the facilitator uses that information to connect with prior knowledge and new learning in the ZPD, e.g., "what strategies have you used in other classrooms to promote interactions that could promote online interactions?"

Background

Lev Vygotsky was a Russian psychologist and educator who died of tuberculosis at the age of 37 in 1934. However, his works continue to be translated (Vygotsky, 1978) and interpreted. His research and interests began with the study of mentally-infirm children and expanded to include others as he noted that children tended to improve their learning when they were in the company of those who were more skilled or knowledgeable about the topic. Vygotsky called this potential learning relationship the "Zone of Proximal Development" (ZPD). ZPD is defined as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined by problem solving under adult guidance or in collaboration with more capable peers" (Tharp & Gallimore, 1988, p. 86). In the case of trainers, "more capable peers" would be appropriate for sessions between trainers and in-training faculty facilitators as the latter acquire the new knowledge and skills needed in the faculty facilitator role.

The trainer needs to actively convey to the faculty facilitator that the key to the ZPD is the notion of learning as occurring within a relationship that the faculty facilitator has with past experience, the new content, and the trainer. In asynchronous online education, the relationship develops through the use of language that scaffolds or leads to establishing such a relationship. Vygotsky proposed that the origins of learning are social in nature and, through the use of language, internalization occurs to a psychological plane. The trainer employs tools or strategies that engage the faculty facilitator in a relationship with what is to be learned. In turn, the ZPD is the "function of the interactive context and students' capabilities" (Borthick, Jones, & Wakai, 2003). In the training sessions, the trainer needs to model the behaviors using typed text during asynchronous online interactions with the faculty facilitator because the faculty facilitator must likewise use these same behaviors in a future course with students.

One concept attributed to Vygotsky's theories is that of scaffolding. Wood, Bruner, and Ross (1976) were first to use the term with the notion that the trainer controls the learning that occurs between what is known and what is to be learned at a level appropriate to the faculty facilitator.

The trainer uses strategies in anticipation of competence in the faculty facilitator and provides scaffolds as a means to that end. For example, if the faculty facilitator can not grasp a concept or demonstrate some skill, the trainer might prepare an online handout containing the needed information (Sanders & Welk, 2005). Scaffolding is now understood to be necessarily bi-directional between the trainer and the faculty facilitator where the goal is transfer of responsibility for the learning within the relationships of content and interactions (Berk & Winsler, 1995). In this way, the learner functions independently when the trainer or facilitator is no longer directly involved.

The trainer will anticipate some facilitator beginning competence and “Vygotsky claimed that instruction influences development only if it runs ahead of development” (Giest, 2004, p. 51). Instruction that does not invoke a meaningful future activity for the faculty facilitator will not result in a change for that faculty facilitator. The trainer in the asynchronous online environment creates the opportunity for a relationship where language serves as the medium for transfer of responsibility for learning new knowledge, attitudes, or skills. Through interactions with the trainer, the faculty facilitator bears ultimate responsibility to understand a concept in order to apply it to some authentic task or setting (Borthick et al., 2003). If the objectives and learning activities do not require that the faculty facilitator do anything at a higher level of application or knowledge than already known, the ZPD is not be engaged and no significant new learning occurs. The trainer might puzzle over lack of faculty facilitators' learning when saying, “but I told them; why did they not learn it?” Reflecting on the ZPD, we can picture a faculty facilitator who is capable of more learning about a subject but the forms of instruction do not create the cognitive dissonance or relevancy and required faculty facilitator activity to cause the faculty facilitator to interact with the content. This situation would not mean that the faculty facilitator could not respond at a given moment, but it is possible that later recall or use of the information would be limited because the faculty facilitator had not developed further in terms of retention of the learning for any useful purpose. The trainer therefore seeks multiple opportunities during the training sessions with the faculty facilitator to show the knowledge, attitude, and skill for the objectives in question and requires a return demonstration on the faculty facilitator's part.

Active involvement of the faculty facilitator during training sessions is more consistent with current constructivist theory than with previous notions that knowledge was acquired (Anderson , 1981). In the latter case, simplistically the trainer prepares materials, provides them to faculty facilitators, and faculty facilitators acquire new knowledge. In constructivism, a movement also associated with Vygotsky, the faculty facilitator works or collaborates with others to construct or create knowledge structures that link to and extend prior knowledge (Borthick et al., 2003). Learning is viewed as a social interaction “in which faculty facilitators perceive an internal need to reconcile different perspectives to resolve conflicts of interpretation” (Borthick et al., p. 109). In doing so, the faculty facilitator emerges with a different perspective than at the outset and this achievement would be the primary outcome of learning from the trainer's objectives.

Key to constructivism is the authenticity and real-world experiences that constitute the learning environment. Jamieson (2004) called this contextual-based learning as one occurring in a “community of practice” where novices and experts could interface and new identities could be formulated. For disciplinary socialization to occur “the online environment must provide complex, culturally relevant, ill-structured domains within which the user can operate and ‘live’” (Doolittle, 1999, ¶5). Doolittle used the word “ill-structured,” but the term is not the same as poorly designed. If the faculty facilitator is to construct a perspective from the learning interactions, there needs to be some “space” to do that, some room for integrating the faculty facilitator's own prior knowledge and experiences within the learning relationship with the trainer

and the new content.

Relevancy for learning is also evident in Vygotsky's Cultural-Historical Theory which holds that social interaction plays a basic role in the formation of cognition as long as it is grounded in the relevant culture and history of the learner. Vygotsky believed that some type of “tool” mediates this activity and these tools might be physical as in a computer or psychological as in the words typed on the computer for transfer to others. Additionally, Vygotsky “viewed the cultural world (instantiated as the ways in which people have become used to interacting with one another, their tools, and institutions) as the source of development of higher mental functions” (Tudge & Scrimsher, 2003, p. 214). The person who seeks to teach online, i.e., the online faculty facilitator, most likely has experienced different tools of learning in many cultures and histories before coming to the online environment. For example, perhaps the faculty facilitator is primarily accustomed to objective examinations or factual responses and now there is an expectation for reflective thinking, for typing one's thoughts in a coherent, concise manner for interaction with peers of all disciplines around the state or country or world. Perhaps the faculty facilitator has not had expectations to be socially aware or conscious of his or her own thinking or the origins of those thoughts in the learning situation. Those expecting to move in the ZPD to higher mental functions need this metacognitive skill to understand their own prior learning.

Factors that Influence Learning Relationships

In asynchronous online learning, the social interaction between the trainer and the faculty facilitator occurs through words with the computer as the interface. Language and strategies need to be formulated to promote a relationship for the faculty facilitator in the ZPD. Without this direct intention, the trainer may not subsequently create an activity that promotes connection of prior learning and construction of new knowledge, attitudes, or skills. The tone of the message must convey the social context that will stimulate the faculty facilitator to THINK about the words, engage in some mental gymnastics about the issues at hand, and emerge changed in some way.

The trainer who is creating the learning relationship in the ZPD in the capable faculty facilitator is challenged in an asynchronous learning system where live human contact and real-time interactions are not evident. The actual “ah-ha!” and “Eureka !” responses are private and uneven across a group of faculty facilitators, despite the common daily practice of signing into a newsgroup or discussion group. This experience can be frustrating for the trainer. However, there may be some advantage to promoting faculty facilitator activity in the ZPD in this environment because of the relative anonymity (e.g., with no pictures, one can write discussions responses in one's favorite lounging clothes) that comes with online learning. Kubala (1998) reported that students are “more willing to participate [due to] a measure of anonymity which serves as a motivator...people feel more empowered. They are daring and confrontational regarding the expression of ideas” (¶ 5). In such a state of mind, a faculty facilitator might make the extra effort to engage with the less familiar content or discussion topic, and in doing so, take responsibility for learning. When the faculty facilitator is an experienced faculty member, for example, in a live classroom setting, the faculty facilitator in-training may feel very vulnerable to “not being right” or making errors online. On the other hand, online education may also be the great equalizer since such variables as no real-time classroom-based commitment, seating arrangements, different voice qualities, dialects, speech infractions, potential gender biases, shyness, and anxiety about raising one's hand or talking in class are largely missing in this environment (Blackboard, Inc., 2000). The trainer can view these characteristics of asynchronous online education as providing a very fertile and dynamic opportunity to create the right conditions for

the ZPD.

There are a number of factors that the trainer should recognize as potentially influential where typed language is the sole medium for exchange of information. Attention to these factors may be necessary to keep the online faculty facilitator engaged in the learning process itself. These factors include online tone established with initial contact, the need for technical support, anxiety reduction, the response timing of the trainer, and the possible reluctance of learners to use the medium as intended.

The trainer attends to each faculty facilitator's ZPD upon posting the very first note in the asynchronous classroom. This note might be a Welcome Note or a Check-in Note or whatever usual protocol for first contact is in place. Tait (2004) studied the role of the faculty facilitator in student retention related to facilitator contacts before assignments. Tait found that 45% of the students reported that the pre-assignment contact improved their submission of that assignment and 79% said it improved their confidence in completing it. Compared to a control group, those receiving contacts performed better in overall course grades. The trainer's efforts to establish this type of early rapport through the written language can also serve to retain faculty candidates for the online teaching role.

Support personnel at the trainer's institution for the faculty facilitator are very important to creating and sustaining the affinity of the faculty facilitator for distance learning at both the emotional and cognitive levels. It is hard to feel confident about learning the content of a training course if the faculty facilitator feels "too stupid" to subscribe to the newsgroups. Murphy's Law – what can go wrong will go wrong – can serve as a deterrent to learning when it relies on a working computer, software, and virus checker. The trainer can not help the faculty facilitator foster a learning relationship in the ZPD and promote learning unless such positive supportive relationships are started early and sustained through trainer and support personnel throughout the length of the course. The trainer does not need to know how to "fix something" that is happening at a technological level but reminding faculty facilitators of access information for email or telephone contact with support personnel can help to keep the faculty facilitator engaged and moving forward.

Salmon (2000) designed a five-stage model to help deal with reduction of student anxiety in technology courses: access and motivation, online socialization, information exchange, knowledge construction, and development. Salmon sought high-level involvement initially that used technology but it was not difficult in terms of content. These strategies included exchange of biographical information and responding to that of other students. Once students were accustomed to the technology it was possible to concentrate more on knowledge construction and development within the faculty facilitators. The trainer may find that anxious faculty facilitators are more apt to send private emails to the trainer for various reasons and supportive responses can allay expressed concerns. In turn, when the trainer sees a faculty facilitator expressing lack of confidence ("My response probably won't make much sense, but...") in a newsgroup or discussion board post, a private email of support or additional reference ideas may also help with anxiety reduction. It may also be possible to group potential faculty facilitators by level of previous experience with computer technology and prior online learning. For the experienced facilitator who is in-training at a new institution, it may be a waste of valuable time to read online posts from novices struggling with online basics. On the other hand, the experienced facilitator can continue to see how the trainer handles these situations which will promote learning in the ZPD when new information is processed and applied at a later date.

Hughes and Daykin (2002) found that using Salmon's approach reduced student anxiety but it did not necessarily enhance knowledge construction or development. Students in their study tended not to contribute much to conversations if academically stronger students posted their responses first or if the faculty member posted a response or observation early in the thread. Since both of these contributors represent "more capable peers" in the ZPD notion, this finding lends support to the concern that mere scaffolding (providing information that the student *might* need) was not effective to engage the student in active learning in the ZPD. The trainer therefore needs to be alert to patterns of posting that seem to turn off discussions rather than facilitate them. The trainer may find that waiting until all faculty facilitators have submitted initial responses to a discussion question, for example, before replying to any faculty facilitator post will in the long run promote better interactions among the group and engage more faculty facilitators in this learning relationship.

The Hughes and Daykin (2002) research deserves a closer look for its contribution to the trainer's role in collaborative learning. When they reviewed the interactions of online groups engaged in an assignment completion, they found that students tended to only use the newsgroup or online site for organizational purposes. The researchers could track exchanges of documents towards a finished product but the site was not used to discuss the content of the work. Students tended to accept one another's renditions and not display the constructivism that such an online system might enhance. Students seemed reluctant to criticize one another's work or to point out a lack of high standard in the work. With the only relationships established as online ones, students and in-training faculty facilitators alike may lack the usual give-and-take that lets them use constructive criticism when they can not see the receiver's face in that exchange. The trainer will want to model responses that tactfully point out misinterpretations or misinformation so that faculty facilitators will see that this can and should be done in this learning environment.

Strategies to Facilitate a Learning Relationship in the ZPD

The trainer has the important role of monitoring each faculty facilitator's written words in order to "see" the ZPD and within it the presence or absence of meaningful learning activities and outcomes. For example, in a faculty facilitator's discussion question response, does a particular faculty facilitator stay at low levels of input in Bloom's *Taxonomy* (1956), that is, at the knowledge or comprehension levels but responses are not at the analysis, synthesis, or evaluation levels? The trainer should not assume that the faculty facilitator intended to respond at these lower levels or even that the faculty facilitator is metacognitive about his or her own learning. The trainer creates the cognitive dissonance or conflict that Borthick et al. (2003) noted was necessary in construction of new thinking. The trainer can use the sandwich technique, that is, basically, "nice job...but have you thought about....in sum, good points regarding...." to create the cognitive conflict or motivation to clear up a discrepancy or promote thinking beyond the initial response.

In addition, however, the trainer recognizes that a faculty facilitator is not obligated to respond to the trainer's specific return post in which the trainer has attempted to facilitate that faculty's learning. Many a carefully crafted post seems to wither on the newsgroup vine. The trainer must, however, assume that these posts are actually read by the individual faculty facilitator as well as by others in the training sessions. In turn, the selection of learning activities that require application of content becomes the trainer's primary influence in promoting relationships in the ZPD. The trainer may wish to use summary paragraphs on a weekly basis that require demonstration through words of the expected knowledge, attitude and skills.

It would be ideal from a course management standpoint if each in-training faculty facilitator's ZPD was of the same nature or if learners were progressing at the same rate. Since this is not the case, the trainer must read and think about each faculty facilitator's response carefully in order to make the appropriate learning overture and difference in outcomes for that faculty facilitator. Unlike reading a single assignment for grading, the trainer must also develop the ability to recall and document a single faculty facilitator's progress across newsgroup or discussion board entries scattered throughout the visual response display in order to follow that faculty facilitator's ZPD activity. Some software allows the trainer to "find" all messages from a single faculty facilitator which helps with such evaluation; however, these accumulated messages may not show how that faculty facilitator prompted another faculty facilitator to ZPD activity when it is isolated from its discussion thread. This "leg" in the relay of knowledge will be important to note since it will show that the in-training faculty facilitator is able to demonstrate this skill that the trainer is modeling. In sum, the trainer needs skill in evaluating individual responses as well as a sense of the whole in how a faculty facilitator may effectively facilitate others in future online classrooms.

Any given faculty facilitator may also regress in terms of online performance (too busy or tired after work to concentrate and do one's best) and this makes the trainer's role even more difficult. A general recognition of patterns of response over time is necessary for faculty facilitator evaluation. For example, the trainer might use software features such as "flags" when a faculty facilitator has met an objective in a response, thus improving efforts to eventually evaluate that person in the training sessions.

The trainer also needs to consider the nature of the questions or topics posed for the faculty facilitators and the stance the trainer takes with each response to a faculty facilitator. Gerber, Scott, Clements, and Sarama (2005) noted that in asynchronous online learning each single student's post or response was given more faculty attention than a four-line verbal response might be given in a live classroom discussion. The competent, conscientious faculty might mull over such a response seeking to craft something that will make the most difference in the ZPD. To investigate this interest, they studied the effect of topic level (higher-order thinking vs. lower-order thinking) and the faculty's stance (challenging, i.e., contradictions, references, evidence, explanations vs. non-challenging, i.e., acknowledging, supportive, gives information) on two indicators of critical discourse in the student's responses, i.e., referencing and reasoning. A higher-order topic would include higher Bloom *Taxonomy* verbs such as analyze or evaluation. A challenging stance might ask for the student to defend a position, give a theoretical background, or provide conflicting evidence. Referencing meant giving an actual name of a theory; reasoning showed a thoughtful, reflective response versus a simple factual entry.

The authors found that lower-ordered topics were associated with a greater percentage of reasoned responses but they were not referenced postings unless the faculty made the direct challenge to give such references. A challenging stance did not affect the number of reasoned or referenced responses for higher-ordered topics. The authors also found that 43% of the reasoned posts occurred at the start of the thread and that it was very difficult to get students to continue to engage in this level of discussion throughout either topic type except when the trainer challenged them to do so. Most students, something Gerber et al. called "stragglers," do not return to post reasoned or referenced responses to their peers. "Minders," however, returned to respond to the trainer's posts at a rate of 84%.

The trainer role in light of the Gerber et al. (2005) research needs to include a challenging stance with a direct approach of clearly designing the directions to the faculty facilitator about response to questions. In other words, these authors naturally did not tell their students in advance the

nature of the expected responses and therefore they received erratic and incomplete responses at times. However, if the faculty facilitator is directed to show reason and references in initial and subsequent postings and to respond to a certain number of both peer and trainer postings, perhaps the desired outcomes can be realized more efficiently. Whenever the trainer notes a common pattern of faculty facilitators' responses requiring intervention, it is time to post one note in the main newsgroup or on the discussion board (the big scaffold idea) rather to teach each faculty facilitator individually. It is refreshing to see that the students did respond to Gerber et al. in terms of the individual interventions that the faculty initiated but the trainer will want to apply these research findings at the outset of the course construction and implementation.

Tharp and Gallimore (1988) are largely credited with applying Vygotsky's ZPD to strategies that trainers could use to stimulate the ZPD and transition of faculty facilitators through the relationship to a greater transfer of responsibility for learning. Several of these strategies are applicable to the trainer's role in asynchronous online learning in mediating relationships: modeling, feedback, instructing, and questioning.

The trainer models when he or she offers a behavior that the faculty facilitator can imitate with the implication that doing so will help to meet the objectives. In live classrooms, students generally react positively to being shown examples of acceptable assignments so that they can "picture" the result. The potential dilemma for the trainer is that this action may stifle creativity or result in "cookie cutter" outcomes. On the other hand, the trainer can model the nature of responses, e.g., the trainer uses reasoning and references to show faculty facilitators the expected level of preparation and input for discussions and points out this intentional behavior to the faculty facilitators. Or, if faculty facilitators are struggling with some aspect of an assignment or how to apply it to a real-world context, the trainer can model by giving an example from his or her own rich contexts of experience or practice or showing how one might start a written response (e.g., give an example of a faculty facilitator response to perhaps item one of an assignment). Again, the trainer is aware that faculty who are experts in their live classrooms may be novices in the online environment and therefore will need scaffolds appropriately.

Maor (2003) modeled an online strategy based on a social constructivist approach. In this approach, the trainer provides social, pedagogical, technical, and managerial support through dialogue, instructor co-learning, and the joint construction of knowledge. Maor studied 12 students over a 13-week semester and analyzed their asynchronous interactions in an Activity Room with a particular objective of modeling and promoting a reflective practitioner role. The researcher/facilitator also specifically appraised students of the social constructivist theory so that they could be aware of what they were trying to achieve:

Social constructivist theory...suggests that knowledge is socially constructed through reflection on your own ideas and other students' ideas. Thus, the purpose of the Activity Room is for students to share ideas related to the relevant topic based on the readings, personal experiences, and beliefs and to learn from the other on-line participants – in order to achieve open-discussion and critical discourse (Article No. 16). (p. 130)

When Maor (2003) found that students did not follow such directions, the faculty facilitator intervened to prompt such behavior, such as, "are you helping your peers to improve?" or reminding them of the need for criticalness, scholarship, connection to experiences, and professionalism in their responses. Like Gerber et al. (2005), Maor found that students improved in their interactions when the faculty facilitator challenged them to be more reflective and to show more application of course content and experiences to the discussions. The trainer needs to

possess skills that will give the social, pedagogical, technical, and management support that are needed daily in online discussions.

Feedback is a strategy already well known in online education and it occurs as both formative and summative evaluations. Borthick et al. (2003) used the phrase “just-in-time capability” (p. 114) to relate to course objective and content sequencing; however, it also has merit for the nature of feedback in the ZPD so that the student can configure and re-configure thinking as needed under the facilitator's guidance. Providing quality on-target feedback is difficult when class sizes are large or online activity is voluminous. The trainer may wish to design tracking forms that help to monitor any single faculty facilitator and provide a weekly evaluation. Such systems help both the trainer and the faculty facilitator to generate and use feedback to stimulate ZPD activity and outcomes.

In giving feedback, Neville (1999) noted that the trainer should be clear about who has responsibility for what part of learning in the course or learning team as in problem-based learning. In addition, the trainer must recognize when there are misconceptions or the faculty facilitators are straying too far from the intended discussion or assignment focus. At that time, the trainer makes some appropriate response to individuals or groups so that “ill-structure” (Doolittle, 1999) does not yield eventual chaos. Therefore, the trainer needs to be prepared in advance with prompts and probes that move individuals and the group towards a particular learning objective. The regular online exchanges that occur with any single group of faculty facilitators will naturally add some new twists and insights regarding the topic at hand but the trainer needs an advance plan to avoid drifting too far from that topic. For example, as the faculty facilitators share actual practice experiences, it is easy to see the discussion thread wandering to some details of *that* experience and away from how the course materials apply to it. The trainer can guide the faculty facilitators to the Chat Room if a “hot topic” emerges when it is not directly related to the course itself. Controlling “drift” through online reminders and focused course-related feedback says to the faculty facilitator, “you need to take the responsibility for your learning and that of the group through your responses so that together we might foster relationship and movement in the ZPD related to this course.” Feedback to an individual faculty facilitator in a weekly evaluation or private email can also be effective. The trainer can also provide summary responses at the end of each week regarding the main points that best reflect learning for a particular objective. This scaffold serves to move the group along as a whole but also helps to fill in the gaps of learning for a faculty facilitator who did not include such thinking during that week's discussion.

There are various ways to use instruction in online learning. Forms of instruction include posts to individuals, with the assumption and course direction that all faculty facilitators should read all posts in a newsgroup, and posts to the entire group as a new thread that they will notice. The word instruction has the notion of structure and sometimes it is just what is needed to facilitate learning. Class notes, mini-lectures, references to Internet links, and online handouts are ways to support learning through instruction. Trainers can synthesize key text or faculty manual materials when needed to crystallize individual or group learning. Instruction that includes careful choice of applicable text pages or online slide programs will focus the faculty facilitator and potentially increase the relevancy and authenticity of doing the reading. The instruction must serve to stimulate the faculty facilitator to engage in thinking and learning and to mediate a ZPD around the topic at-hand.

Questioning is another linguistic means of assistance. The trainer will want to choose either questioning forms to assess or questioning forms to assist (Dunphy & Dunphy, 2003).

Assessment questions will probe what the faculty facilitator knows, e.g., "what strategies will promote faculty facilitator online interactions?" Assistance questions are meant to promote that sense of cognitive dissonance or conflict in order to create activity in the ZPD for new learning, e.g., "how does the strategy of open-ended questions promote learning in online education?" Trainer evaluation of faculty facilitator responses often includes noting whether the faculty facilitator has included something in the response that requires or promotes some type of new response in the next reader. This situation might include asking a question after some explanation in the post. The visual picture of "passing the relay baton" is a good image for how online discussions might progress. In addition to having the faculty facilitator *just* ask the question of others, one strategy may be to have the faculty facilitator who poses a question then offer a possible response of his or her own to that question. For example, the faculty facilitator might write: "Does anyone know of a strategy to promote more detailed responses? My students are only posting a few words and I have asked them to post 100 words or more to no avail."

Conclusion

The trainer in an asynchronous online learning environment can create the cognitive dissonance and positive circumstances towards the mediation of a learning relationship in the Zone of Proximal Development. The trainer can recognize and respond to factors that may influence a learning relationship in the ZPD. The trainer can use scaffolding strategies like modeling, feedback, instructing, and questioning to move the faculty facilitator towards a transfer of responsibility in the learning process. Specific online interventions to promote greater reflective thinking are in order as the trainer challenges the faculty facilitator to develop greater depth in thinking and to share it in online communications with others. In so doing, the trainer models the behaviors and evaluation techniques that the faculty facilitator will need to teach independently online. Although Vygotsky died as a young man over 70 years ago, trainers and faculty facilitators can continue to apply his theories and principles to many areas of education, including online asynchronous learning.

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