THE LEARNING CLUSTER MODEL (LCM) AS A MEANS OF EXTENDING THE
CAPABILITIES OF AN ONLINE PROFESSIONAL DEVELOPMENT SYSTEM IN
GEOGRAPHY

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1. INTRODUCTION

In an attempt to modernize the practice of professional development (PD)
in geography, the Gilbert M. Grosvenor Center for Geographic Education, in 2010,
began the planning and production of an online PD series for geography, social
studies, Earth science, and environmental science teachers titled, Geography:
Teaching with the Stars (Stars) (Boehm et al. 2012). Four programs are now
complete, 1) “Globalization,” 2) “Watershed Management,” 3) “Agriculture and
Water,” and 4) “Tidewaters,” and four more are in the grant proposal and
development stage. These programs are available at no cost for teachers at all grade
levels at www.geoteach.org. Comprised of 6 major component parts, each program in
Stars includes;

1) classroom demonstration(s) of model teaching in a classroom setting;
2) a pedagogic enhancement that includes comments provided by a mentor
teacher on the “best practices” used by the ‘Star’ teacher in the classroom
demonstrations;
3) a content enhancement which is generally referred to as a case study, and,
in many instances includes expert commentary on an issue related to the
program emphasis;
4) all print instructional materials, including maps, graphs, worksheets, and
background materials;
5) a facilitator’s guide which provides step by step instructions on how Stars
can be implemented in an online or face-to-face manner, and finally;
6) the project website also features a forum where teachers can ask and
answer questions and exchange ideas about the Stars programs and
implementation in their own classrooms.

Professional development in geography has been going on for more than
two decades in the National Geographic Society’s Network of Alliances for
Geographic Education (Mohan and Boehm 2009). Typically, the experience for teachers emanates from a workshop or summer institute in a traditional, face-to-face format. In that manner, thousands of teachers have become better geography teachers, and there is no question that the Alliance Network is a fine teacher training system. In recent years, however, the Alliance face-to-face training regimen has been buttressed somewhat by webinars, video programs, and content and skills programs designed for pre-service and in-service use.

While the Alliance Network continues to rely mainly on face-to-face PD, with few changes over a 25-year history, our lives, in general, changed drastically to adjust to new developments in information technology. Certainly, the younger generation of teachers, as well as, many seasoned, practicing teachers, want and need, a more flexible means of accessing PD. It also continues to become more and more difficult to convince teachers to travel to a central location and devote one or two weeks of their time to a PD experience (Borko, Whitcomb, and Liston 2009; de Mesquita, Dean, and Young 2010).

Taking all this into account, first we discuss results from our initial evaluation of the acceptance of Stars as an avenue of online PD in geography. We next turn to the main focus of this paper, the development of the Learning Cluster Model (LCM), a hybrid dissemination method for Stars, which also has potential to enhance the development of teacher leadership skills. Our early evaluation of Stars and the use of the LCM, has provided insight into how this dissemination method can put powerful pedagogic techniques into the hands of teachers, while offering the opportunity for future cadres of teachers to improve their leadership skills. The LCM also increases the chance for more widespread use of the online PD system, Geography: Teaching with the Stars.

2. LITERATURE REVIEW

Alternative PD has been used widely in math, science, and language arts as a means of reaching a larger audience, largely buttressed by the use of technology (Borko, Whitcomb, and Liston 2009; Lin 2009; de Mesquita, Dean, and Young 2010; Dash et al. 2012). Using a variety of media forms, alternative means for providing PD have become more appealing in recent years, and typically use the Internet or videos as the major means of dissemination (Dash et al. 2012).

While the vitality of face-to-face PD is still recognized (Hoban and Erickson 2004), convenience, flexibility (Cady and Reardon 2009), cost effectiveness (Jung 2005; Means et al. 2013), and continuous access (Sherin and van Es 2009) would seem to recommend the development of an online PD platform. It is important to note that this experience in other disciplines led to the planning for Stars. Potential for the use of online PD in the development of teacher leadership skills has also been proven effective (Gutierrez and Bryan 2010).

3. EXAMINING THE VALUE OF ONLINE PD

First, it was incumbent for us to try and ascertain how receptive teachers were to the Stars online dissemination approach to PD. Ten early career teachers and 25 experienced teachers, participating in a workshop were shown the Stars program “Globalization” and asked to complete a follow-up questionnaire regarding their willingness to accept and use online PD in geography. Some of the open ended comments (paraphrased) from these early career teachers were very insightful, and they helped the authors of this paper to begin developing the LCM as an effective and efficient way of expanding PD capabilities in geography. Some of the comments by both groups of teachers included:
"I think every teacher could benefit from this online approach, and it definitely underscores that using technology benefits teachers as much as students."

"Seeing a lesson in action [by watching the online video] that aligns pedagogy with content is helpful in how to prepare as a teacher. Plus, it is less overwhelming to start where someone else has found success, rather than to start from ground zero."

"Saves teachers time and gives them knowledge on the subject as well as how to effectively teach it."

"I think "Stars" could be a way to deliver PD to teachers who need it, and need it at a convenient time, and it can be used repeatedly. Much more versatile than face-to-face."

"I like the concept (online PD). Certainly, it fits the needs of teachers who typically have little background in geographic content and how to teach it."

"Very exciting concept (online PD). I think smaller rural districts might find this useful; an effective way to train teachers when sending them to professional meetings is not possible."

Second, an experiment was developed to offer both face-to-face and online PD in a controlled environment. Eighteen experienced, high school world geography teachers participating in an Alliance Leadership Institute were randomly divided into two groups of 9, one group of teachers (Group A), first experienced the implementation of the “Globalization” program in a face-to-face format. Prior to the workshop, the “Star” teacher from the “Globalization” program prepared a classroom demonstration, face-to-face Stars PD experience that was as close to the online version as possible, meaning the same teaching techniques, the same classroom graphic organizers, the same lessons, and the same instructional materials as in the online version. At the same time, the second group (Group B) of teachers experienced the online implementation of the “Globalization” program. On day two, the implementation formats were switched between the two groups. Therefore, Group A saw the live or face-to-face version of “Globalization” on day one and the online version on day two. Group B was just the opposite, seeing the online approach the first day and the face-to-face approach the second day. A survey instrument was administered to collect data on teacher preferences regarding acceptance and comparison of face-to-face and online PD (Table 1). Responses from this group of teachers ranged from a low of (1) to a high of (5).

Analyzing the responses of Group A & B together (Table 1), it is clear that teachers rated the online PD version as at least equal, and, was perhaps a bit more favored than the face-to-face approach. Positive responses to the online approach to the teaching of the classroom demonstration outnumbered face-to-face in a ratio of 10-6. Two thirds of the responses rated the pedagogic enhancement as equal or better. The content enhancement was rated very high but the video enhancement was compelling and not easily replicated in a face-to-face PD situation. The availability of the print support materials appeared to be equal in both formats while some teachers felt that use was more productive in the face-to-face format. It appears as if the
concept of an interactive forum would bode well in both formats. Many of the teachers from all groups surveyed still like the opportunity to talk back and forth and to ask questions, and an online forum would enable them to use the forum as a way to follow up after participating in either a face-to-face or online workshop. In sum, this comparison of an online PD approach versus a traditional face-to-face approach has shown that a group of experienced teachers' opinions of the two strategies seem to favor Stars (online) a bit, but, for the most part, they were equal.

TABLE 1
COMPARISON OF FACE-TO-FACE AND ONLINE PD IN GEOGRAPHY
(N = 18) (Source: adapted from Boehm et al. 2012, 48).

<table>
<thead>
<tr>
<th>Component Parts</th>
<th>Face To Face Much Better</th>
<th>Face To Face Somewhat Better</th>
<th>Face To Face Equal</th>
<th>Stars Somewhat Better</th>
<th>Stars Approach Much Better</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom Demonstration</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Pedagogic Enhancement</td>
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<td>5</td>
<td>5</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Content Enhancement</td>
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<td>0</td>
<td>3</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Print Support Materials</td>
<td>5</td>
<td>0</td>
<td>10</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Facilitator's Guide</td>
<td>2</td>
<td>4</td>
<td>9</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Web-Based Interactive Forum</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>0</td>
<td>7</td>
</tr>
</tbody>
</table>

4. LEARNING CLUSTER MODEL (LCM)

Once it was established that an online PD format was acceptable to teachers (Boehm et al. 2012; Frazier and Boehm 2012), and perhaps even a bit preferred over face-to-face training, the task was to develop a delivery system that was active, that is, centered on the online platform, but that involved a component in developing leadership skills that was not specifically required for teachers to use Stars. Our answer was the development of the Learning Cluster Model (LCM), a dissemination process that includes a strong requirement for the development of teacher leadership skills.
Our first experience with this type of a proactive delivery system emerged from our work with the Iowa Geographic Alliance during the summer 2012. The message that came out of this three day workshop was that there was a great interest by teachers in developing and using a hybrid approach to the implementation of Stars that included both face-to-face and online components of PD; therefore, offering a “best of both worlds” approach (Magiera 2012, 6). A hybrid approach to PD also ensures the continuous support teachers need to have access to and enables them to follow up after or in between face-to-face workshops (Dede et al. 2009). For example, the teachers commented:

“...I’m a firm believer in getting to know people and getting to know your audience, you might not be necessarily able to get that if you’re on a computer doing those things so if you start off face-to-face as you get better you might develop some strategies on how to get these across through distance by getting to know the people that you’re working with.”

“...teachers are social beings ... there’s still that social aspect to it.”

Next, we conducted a similar LCM workshop with a group of Texas teachers, also during the summer of 2012. Similar comments regarding the need for a hybrid approach to PD emerged from this workshop as well:

“I think a combination of the two is really what I’m comfortable with ... the face-to-face is more personal but you have the videos that are available to you ... I think that the combination is probably what would work better for me.”

“I think it would be cool if you could do a webinar [as a hybrid approach], because then you could do both in one shot, and then you if you had the questions, you could have them ask during the webinar but then you also have the resources later on to go back and use at your own leisure but I found that webinars are just very beneficial, you can tag in whenever you’re at home, or if you’re at school.”

Finally, a Stars workshop and LCM event was held at an Educational Service Center (ESC) (early spring 2013) in Texas with the idea of fulfilling one of the main goals of Stars, fostering an environment for teachers that promotes and enhances teacher leadership skills. Following a presentation and viewing of all of the major components parts to Stars with a particular emphasis on the online platform and the development of teacher leadership capabilities, in both instances, again, we found that teachers were quite relaxed about accepting and using the online capabilities of Stars, but still wanted the benefits of some face-to-face training. Also, they felt that a hybrid approach helped them to develop teacher leadership skills that would make it easier to “pass the education torch on to other teachers.”

In both Texas workshops, teacher participants were challenged to take what they had learned about Stars and implement their own workshops in their home school districts. Overall, the results reinforced our findings in the literature about using online or hybrid PD to develop leadership skills (Margolis 2012). For example,
Gutierrez and Bryan (2010, 42) reported that a teacher, after an experience with online PD exclaimed; "I see myself more in a leadership role after this experience than before. Previously, I thought a leader was the one who always speaks up at staff meetings, but now I believe it's the person who is willing to share and guide, listen, and expand for themselves, the students, other educators, or for future educators that are within their reach."

A geographic distribution of the LCM network sites and their connections with surrounding school districts is presented in Figure 1. The map depicts two first generation sites or 'clusters' (located in San Marcos, Tx and ESC Region VI in Huntsville, Tx), showing the LCM network expansion throughout the state, as well as, within an ESC service region. For example, out of the group of teachers who were first trained in San Marcos, five went on to implement their own workshop back in their home school district; an additional 100 teachers were trained in Laredo, 50 in San Antonio, 75 in Los Fresnos, 80 in Humble, and 25 in Arlington. High flexibility in the use of LCM means it can be used within the Network of Alliances for Geographic Education to expand PD and develop teacher leadership, or it can be provided through educational service centers (as represented with our Huntsville network), or lead schools within a school district.

![Learning Cluster Network](image)

**FIGURE 1**

GEOGRAPHIC DISTRIBUTION OF THE LEARNING CLUSTER NETWORK*

Looking again at Figure 1, it is easy to see the potential for the expanded capabilities for PD offered by the LCM along with the continued development of teacher leaders who are confident in their attempts to implement their own plans for PD in their school districts as was evidenced by comments from some of the teachers following our Huntsville workshop:

"I am kind of the "unofficial" social studies department head; at least at the high school but I do feel like the more
leadership opportunities that present themselves, will promote that leadership role that I have kind of taken on!"

“The Learning Cluster Model has given me more experience working with colleagues to improve their classroom instruction and lesson development. Several of the modules address content areas that teachers identify as weaknesses in our curriculum units and I am working with teachers on our high school campuses to plan implementation of module components into our curriculum units for next school year.”

5. CONCLUSION

Overall, the teacher feedback from all of the groups surveyed has encouraged the continued development of the Learning Cluster Model (LCM), a dynamic hybrid approach to developing teacher leadership traits while disseminating highly effective PD to teachers that might not be able to access such training if it were available only in a face to face workshop or institute. The LCM provides online PD in a hybrid manner and includes strategies to reach new cohorts of teachers in somewhat remote locations. Remember that the Stars online delivery system provides high level PD, plus pedagogic and content enhancements, all buttressed with downloadable instructional materials and a facilitator’s guide, all free, at www.geoteach.org.

Consistent with the thinking behind early NGS sponsored Alliance protocols, in which face-to-face workshops stressed the “Binko Method,” a sharing technique that allowed teachers to take back professional development experiences to their home school districts to share with colleagues (Binko 1989), the LCM, as a hybrid dissemination method, has become a critical component in our goal of developing strong and effective teacher leaders who then are able to help and enhance the teaching and leadership skills of other teachers.

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6. REFERENCES


