THE COLORADO EDUCATION INITIATIVE

LDC Network Analysis

Analysis and reporting by SLOPE RESEARCH + ANALYTICS

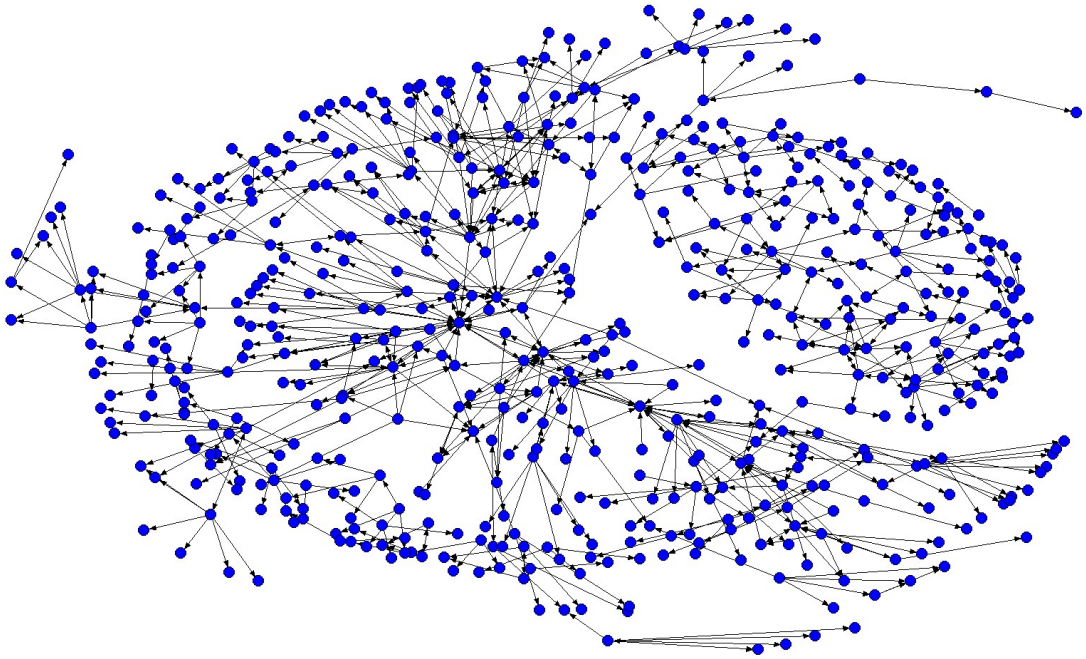
INTRODUCTION

In the fall of 2015, the Colorado Education Initiative (CEI) partnered with Slope Research (Slope) to study the collaborative behavior of educators involved in the Literacy Design Collaborative (LDC). LDC is an instructional tool that helps educators create high quality teaching and evaluation modules that are aligned to the Common Core State Standards and Colorado Academic Standards. CEI has been supporting the implementation of LDC since 2012 and is currently partnering with over 25 districts across Colorado, including five of the largest ten in the state. CEI's support for LDC includes strategic planning with district-level staff and building administrators and direct training and coaching of educators.

Educators in Colorado involved in LDC were asked to answer questions about their experience using this instructional tool and to identify other educators they communicated with when dealing with issues related to LDC. Slope analyzed the survey data using network analysis, a statistical technique that allows for the evaluation of patterns of communication between individuals or other entities in a group, in order to create a social network of educators using LDC in Colorado. This network was then analyzed to reveal the flow of information across the state, and within districts, on LDC-related issues. The network resulting from the data collection effort contained more than 500 educators in Colorado and described and diagramed the pattern of communication between these LDC educators.

THE LDC NETWORK

Figure 1: Full LDC Network



The LDC network in Figure 1 is made up of 547 educators who either responded to the network survey or were identified by individuals who completed the survey as someone they communicated with on LDC-related issues.[1] The network as a whole lacks internal **cohesion**, which is not uncommon for a network of this size containing educators from 39 districts and more than 150 schools. The low level of internal cohesion indicates that there is not a high degree of communication between educators at the state level. In other words, LDC educators in Colorado are more likely to communicate with a small, trusted network of colleagues and friends who are close to them both socially and geographically and are far less likely to communicate with educators external to their own school or district. In fact, over 90 percent of the educators that survey respondents identified as collaborative partners were part of their district, and 60 percent were from their own school.

Network Graph

Images like the one in Figure 1 are known as **network graphs**. Network graphs provide a depiction of actors and the relationships among actors within a network.

- Dots in a network graph represent an actor or an entity in the network. In this case, dots represent educators.
- Lines indicate a relationship between actors in a network. Lines in the graphs in this report indicate communication between educators.
- At the ends of the lines between actors there may be an arrowhead. The arrowhead points toward the target of communication and away from the actor that initiated the communication.

[1] Survey respondents identified up to seven individuals they communicated with on LDC-related issues. Both individual respondents to the survey and any individuals that respondents identified as communication partners are represented as actors in the LDC network.

Although difficult to see in Figure 1, the LDC network is actually made up of dozens of **components** that primarily correspond to districts in the state. Drilling down to the district level, smaller networks with fewer educators begin to appear; these smaller networks are slightly more cohesive and display interesting patterns of communication between educators. These dynamics are explored later in this report.

Cohesion and Network Components

Cohesion describes the overall level of cooperation or communication in a network. Networks where each actor communicates with a large proportion of the other actors in the network are considered cohesive.

Network components are smaller, self-contained networks that exist within a larger network structure. Networks are similar to a section of stars in the night sky, and a component would be a constellation within that section of sky. The constellation is connected internally, but not to the other stars in that section of night sky.

The high degree of communication about LDC between educators within districts has both positive and negative implications. On the positive side, individuals in any sort of network are more likely to communicate regularly with partners in close proximity to themselves. The abundance of within-district ties, in contrast to out-of-district ties, may indicate a sense of comfort and intimacy in peer-to-peer support. Educators likely trust their district partners and can access them easily when needed. On the negative side, however, there very few paths for information to flow across the state. This could mean that if an educator lacks a quality source of information within their own district, it is unlikely he or she will seek out or find better information from elsewhere in the state.

PEER-TO-PEER SUPPORT AND EXPERIENCE IN THE LDC NETWORK

Communication and cooperation is at the heart of the LDC community, and successful communication can lead to more efficient and effective use of LDC in Colorado or any state. Communication between LDC educators is a measure of peer-to-peer support that may result in more positive LDC-related outcomes.

Peer-to-peer support is valuable to the operation of LDC in Colorado; however, it is not the only factor that might influence positive engagement with LDC. Experience implementing LDC is related to increased levels of knowledge, skill, and comfort with the instructional tool and thus may also influence positive LDC-related outcomes. Although experience is an important factor, peer-to-peer support is also critical to the LDC mission and may contain positive benefits that are particularly informative to establishing and improving LDC networks in Colorado and across the country.

Experience and Peer-to-Peer Support

Experience is measured by the number of years an educator has been involved in LDC.

Peer-to-peer support is a measure of the number of educators connected with one another. On average, survey respondents communicated with between three and four other educators on LDC-related issues.

To measure experience, respondents were asked about the amount of time they had been involved in LDC. In the analysis, the location where educators received their LDC training was controlled for to account for the possibility that educators who trained in their own district may have formed relationships with internal peers, which subsequently may have influenced the number of collaborative partners they identified. Results generally support the hypothesis that experience with LDC significantly influences the number of collaborative partners; both the number of years an educator had been in a district and had been involved in LDC significantly increased the number of collaborative partners identified.

LDC is at its core a network of educators, but far less is known about the role peer-to-peer support may play in influencing positive outcomes in LDC. Peer-to-peer support provides a comfortable framework for educators to teach and learn about aspects of LDC. In general, individuals are more likely to feel comfortable learning from their peers and far more likely to seek out information from peers than an anonymous or less familiar source. In addition to the positive influences of familiarity and support, there is likely also a positive influence of social capital that comes from interacting with peers on a common objective. Social capital refers to the trust, information, reciprocity, and sense of cooperation educators gain from communicating in the LDC network, or in other words, the value of participation. This social capital likely empowers educators to work harder, take more risks, and engage in more LDC-related activities than if they felt more isolated. Individuals who identify more collaborative partners are well connected to their peers and also to the network of support. On the other hand, those with fewer connections may be more isolated from the LDC network and would not have access to the network of support.

POSITIVE LDC OUTCOMES: MODULES

Three of the most important activities with which educators engage as part of the LDC community are implementing, authoring, or jurying modules. By examining the relationships between experience in LDC, the number of collaborative partners, and the number of modules an educator implemented, authored, or juried, it was found that:

- The number of years an educator was involved in LDC ***significantly increased*** the number of modules he or she implemented, authored, and juried in the previous school year.
- The number of collaborative partners an educator identified ***significantly increased*** the number of modules he or she authored or juried in the previous school year.
- The number of collaborative partners an educator identified ***did not significantly increase*** the number of modules he or she implemented in the previous school year.

The evidence suggests that experience with LDC is a critical factor in influencing educators' engagement with LDC, and that network collaboration is also very important to successful LDC implementation in Colorado.

Experience with LDC and the number of collaborative partners also significantly increased the probability that an educator shared LDC modules with other educators in the state. As seen in Figures 2 and 3, the probability of sharing a module increased from about 50 to around 80 percent as experience with LDC and number of collaborative partners increased. These findings indicate two important things about educators' level of comfort with LDC: 1) experience with LDC clearly empowers them to feel more comfortable sharing modules with others and 2) the relationship between the number of collaborative partners and the probability of sharing modules indicates a level of comfort and confidence educators derive from working with their peers.

Figure 2: The Effect of Years of Experience with LDC on Sharing Modules

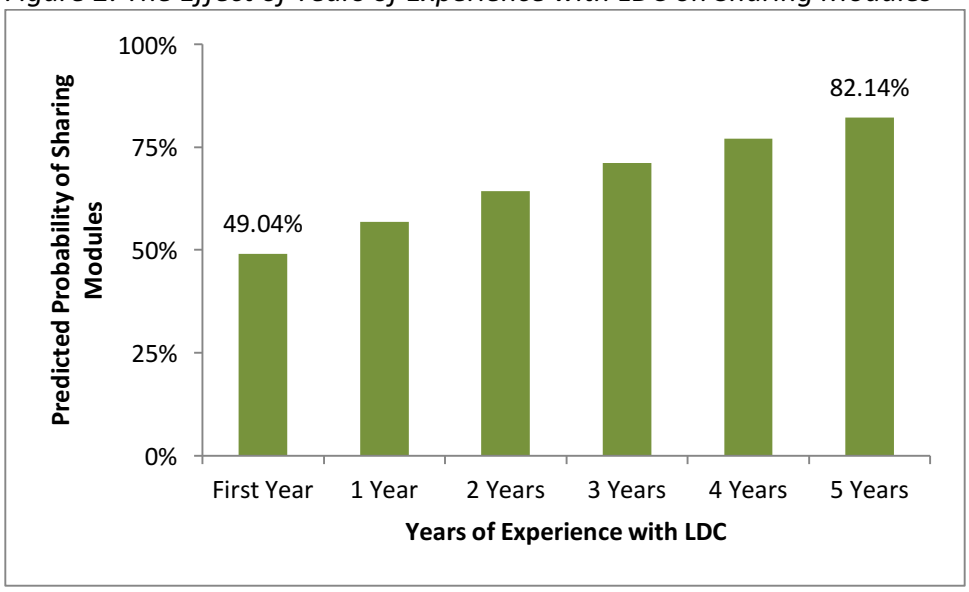
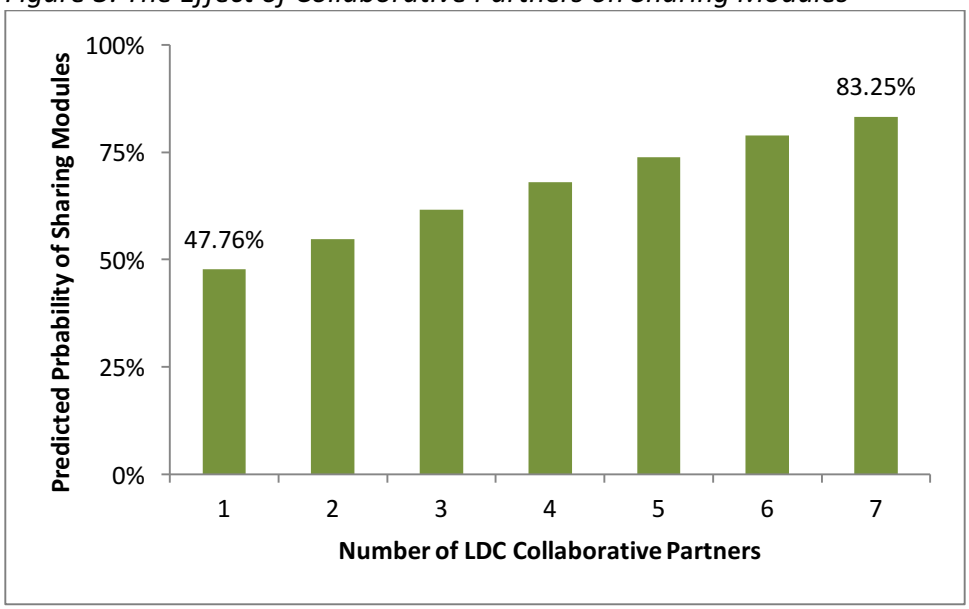


Figure 3: The Effect of Collaborative Partners on Sharing Modules



POSITIVE LDC OUTCOMES: LDC OPPORTUNITIES

In addition to modules, there are a number of important LDC opportunities for educators that can provide additional evidence regarding the broader influence of LDC on their practice. Survey respondents were asked to indicate whether they participate in the following LDC opportunities: jurying, Common Assignment Study (CAS), coaching, attending conferences, and presenting at conferences. All of these opportunities can be considered indicators that an educator is more involved, more comfortable, or more skilled in using LDC in their teaching practice.

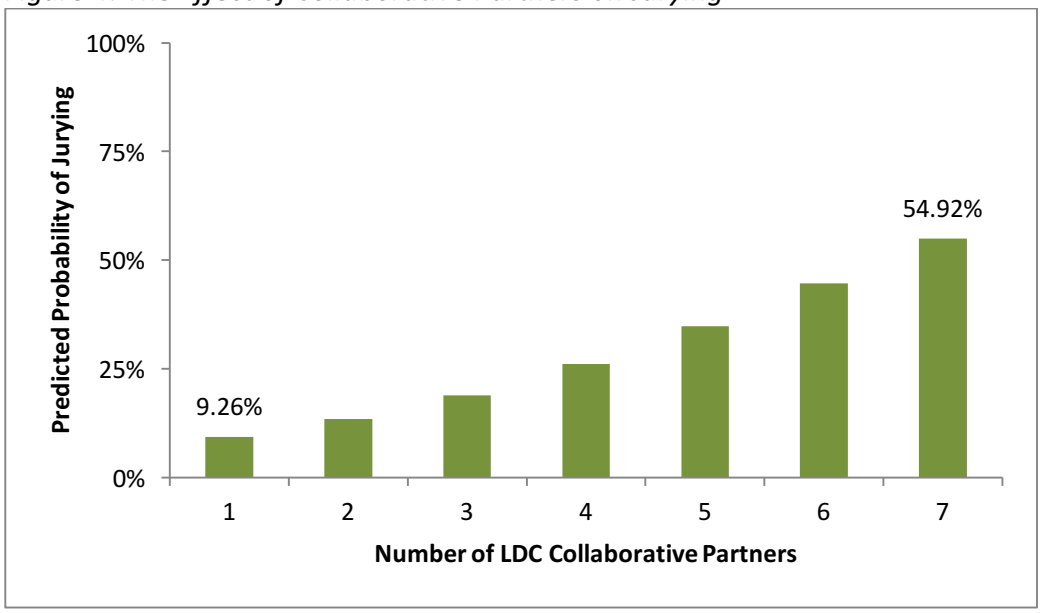
Jurying

Jurying (also known as peer reviewing) a module is an indicator that an educator has a depth of knowledge of the LDC process and of module design. Therefore, it is somewhat surprising that experience with LDC did not significantly influence whether or not individuals were likely to jury other educators' modules. This finding could be due to the fact that jurying is considered extra work, and experience with LDC does not necessarily predict the desire to do extra work. Experience in this case did not predict engagement with an LDC opportunity.

What *does* appear to predict the likelihood of jurying, however, is the number of collaborative partners an educator has within the LDC network. Specifically, results revealed that as the number of collaborative partners increased, the probability of jurying sharply increased as well. Figure 4 shows that an increase of collaborative partners from one to seven was associated with a 46 percent increase in the probability of an educator jurying modules. Together, these findings suggest that although experience is likely an advantage in jurying modules, experience alone is not a significant motivating factor to engage in the practice. Engaging in new opportunities is not only about ability, it is also about desire and motivation. Peer-to-peer support encourages feelings of social support and positive social pressure that enables

educators to take risks and feel comfortable with receiving feedback on their work through jurying.

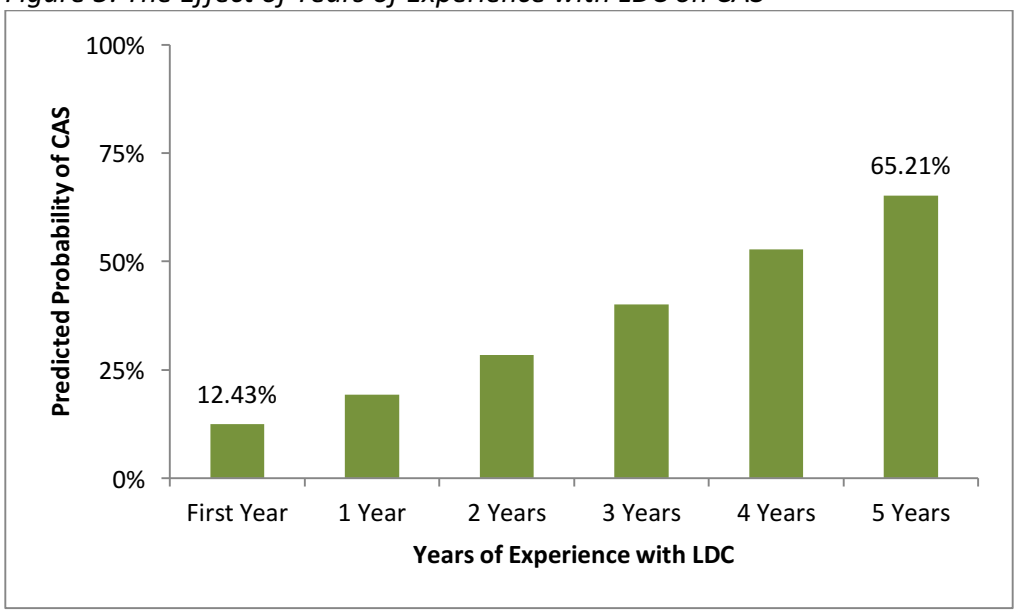
Figure 4: The Effect of Collaborative Partners on Jurying



Common Assignment Study (CAS)

CAS is a separate initiative that brings teachers together to design and teach high-quality instructional units that incorporate LDC modules. Figure 5 below shows the significant effect that years of experience has on participation in CAS; results revealed that the most experienced LDC educators in Colorado were 45 percent more likely to participate in CAS than their least experienced peers. There are two possible explanations for this result. First, more exposure to LDC also exposes teachers to extensions and enhancement opportunities such as CAS. Educators who have been involved with LDC longer are more likely to be aware of these opportunities and therefore more likely to participate compared to their less-experienced peers. Second, more experience also lends itself to greater comfort with LDC, thus leaving more time and energy to engage in extra work that may come with CAS participation. When educators are more at ease with LDC due to experience and repetition, they are more likely and able to take on new growth opportunities.

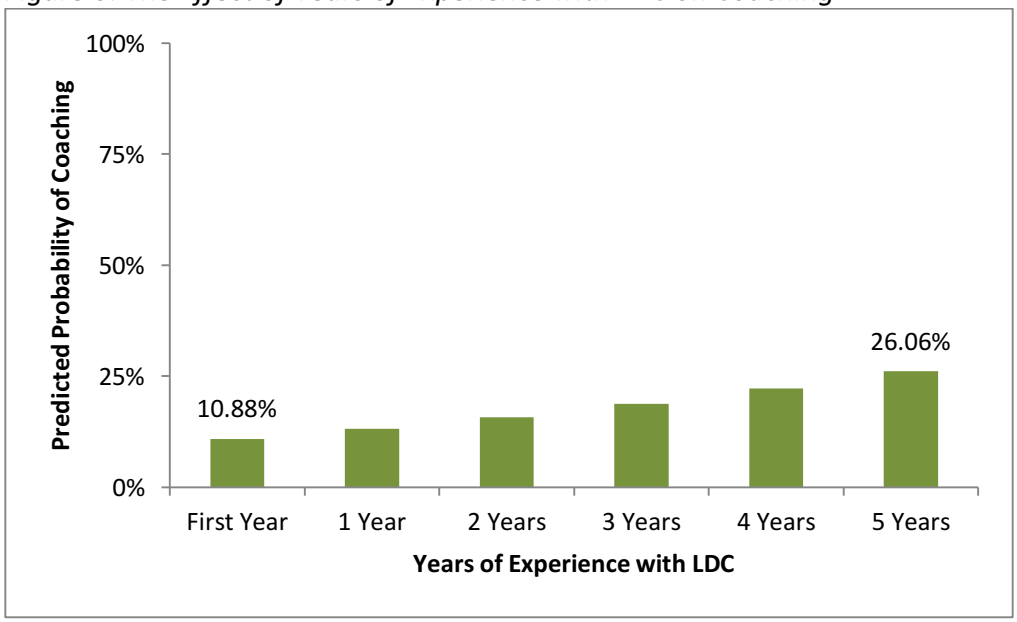
Figure 5: The Effect of Years of Experience with LDC on CAS



Coaching

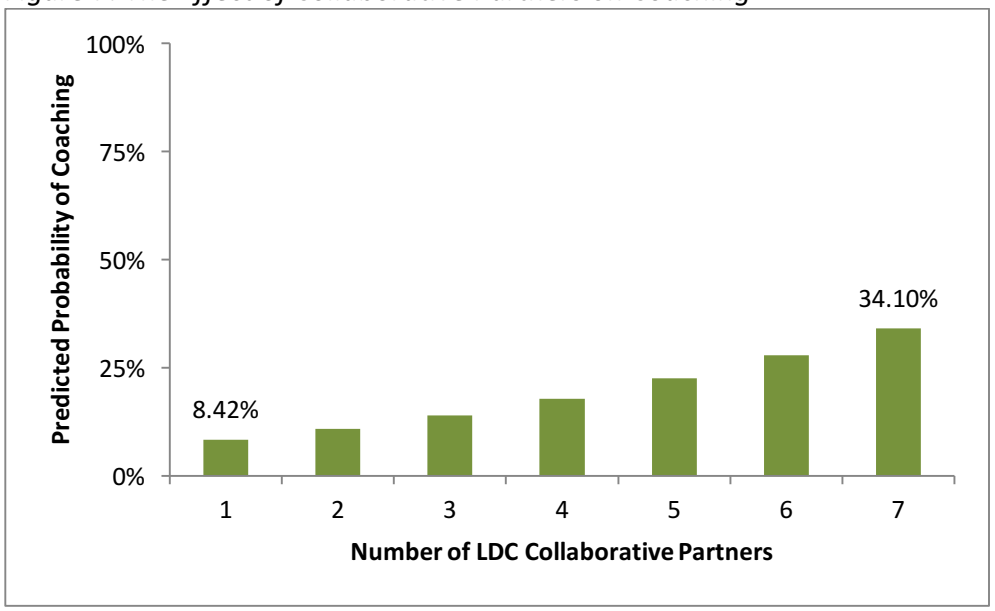
Coaching is another activity where more experienced and knowledgeable LDC educators engage with their peers. As expected, results indicated that experience increased the probability of an educator volunteering or being tapped to coach. However, the effect of this relationship was relatively small. The most experienced LDC educators were only about 13 percent more likely to be coaches than their least experienced peers.

Figure 6: The Effect of Years of Experience with LDC on Coaching



Although the effect of experience on coaching is relatively weak, the number of collaborative partners an educator has does have a significant influence on the probability of volunteering or being tapped to coach one's peers. In fact, results revealed that educators with seven collaborative partners were almost 23 percent more likely to be coaches to their LDC peers than educators with only one collaborative partner. The social aspect of coaching likely drives the larger effect of peer-to-peer support on the probability of coaching. The evidence once again suggests that even though experience is an asset, peer-to-peer support and interaction is a more prominent influence on the willingness or ability to coach other LDC educators.

Figure 7: The Effect of Collaborative Partners on Coaching



Attending and Presenting at Conferences

Conference participation and attendance, like coaching, is an LDC opportunity that is inherently social and driven by person-to-person interaction. Some very interesting findings are associated with attending and presenting material at conferences for LDC educators in Colorado. Years of experience with LDC significantly predicted both attending and presenting at conferences, but the number of collaborative partners only significantly increased the probability that an LDC educator would *present* material at a conference, not *attend*. It is not surprising that years of experience gave LDC educators both the skills and confidence to participate in all aspects of a conference, but it is not clear why peer support would not have a similar influence. It is likely that there is another indicator on the power of support and the social aspect of LDC that empowers educators in all aspects of their LDC-related activities.[2]

[2] Receiving LDC training in one's home district, rather than in another district, significantly decreased the probability of attending or presenting at conferences. There is no theoretical explanation for this relationship, and perhaps this finding represents some form of spurious relationship between the two variables. Even so, future studies may want to investigate the role of local training and indoctrination on this type of activity.

There is one very important insight to take away from the findings regarding conference attendance and participation. The overall probability of an LDC educator presenting at a conference is low. This is not surprising, however, as presenting at a conference indicates very high levels of interest, knowledge, and comfort with LDC. Presenting at a conference is also an uncomfortable experience for many people. Peer-to-peer support was found to have a significant influence on the probability that an LDC educator would present at a conference. Overall, a supportive community can have a positive influence above that of experience alone, which may not provide the incentive to perform an uncomfortable task that makes many people feel vulnerable. High levels of peer-to-peer support increase the community bonds that increase social capital. When social capital is high, network members feel nurtured and supported by their peers. They are therefore more willing to take chances, such as presenting at a conference. Experience is important to building strong members of an LDC community, but peer-to-peer support is critical to making the bonds of that community strong. In turn, this makes the members of the community better stewards of the LDC mission and objectives.

Figure 8: The Effect of Years of Experience with LDC on Attending Conferences

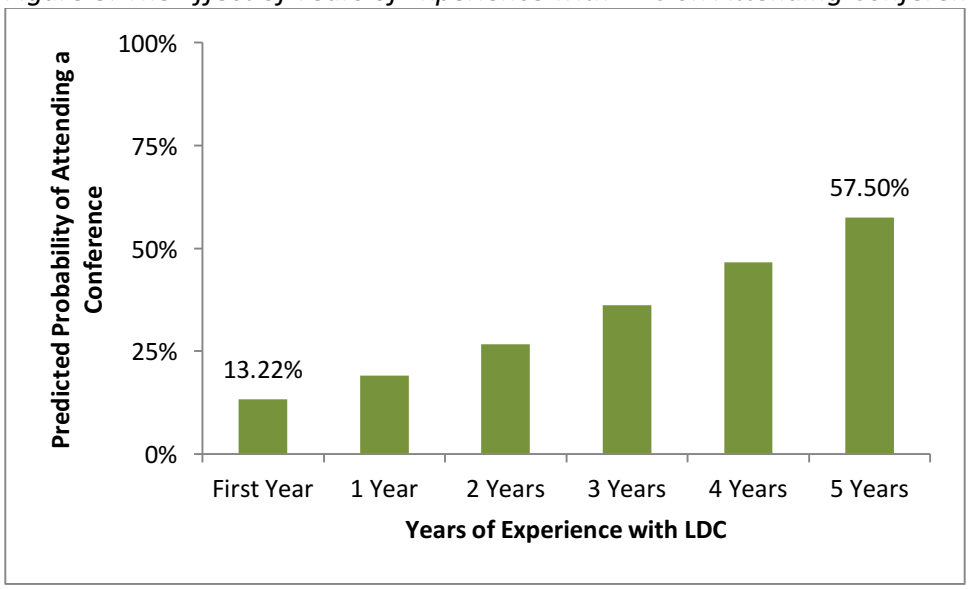


Figure 9: The Effect of Years of LDC Experience on Presenting at Conferences

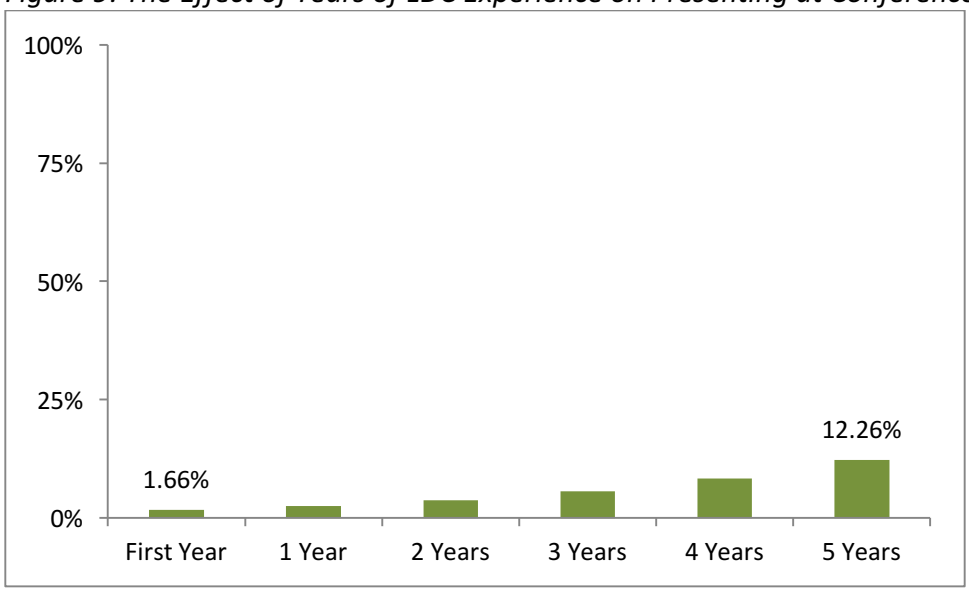
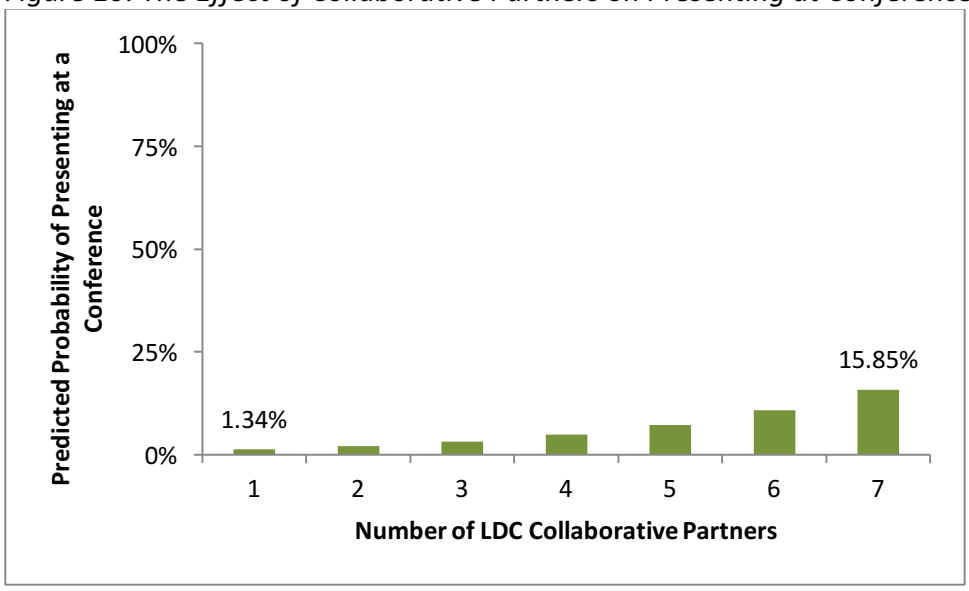


Figure 10: The Effect of Collaborative Partners on Presenting at Conferences



LESSONS LEARNED FROM EXPERIENCE AND PEER-TO-PEER SUPPORT

Both experience with LDC and higher levels of peer-to-peer support have consistent positive influences on LDC engagement across Colorado. Experience increases confidence and understanding of LDC and thus influences educators to take on more duties, leadership, mentorship, and enrichment opportunities. Although recruiting new educators to participate in LDC is critical to the future of the initiative, retaining educators is just as crucial to enriching the initiative as a whole within Colorado and likely other states.

Learning that experience increases confidence and knowledge may not be a novel insight, but the findings surrounding peer-to-peer support provide a lot of food for thought for organizations like CEI that support LDC. The consistent evidence supporting the idea that individuals prefer to learn from their peers, and likely learn more from their peers than those they don't know, should encourage LDC supporters to continue peer-to-peer related activities and create new opportunities to connect. The number of collaborative partners consistently increases participation in learning and enrichment activities. Peer-to-peer support also appears to create a social incentive to engage in LDC activities across the board. It is likely that peer-to-peer support is related to social capital, and the greater the peer-to-peer support within the LDC network, the greater the incentive and positive pressure to make it better by participating, learning, and supporting.

LDC, school district administration, and organizations that support LDC activities such as CEI have an important role to play to make LDC networks stronger. Social capital is a concept that tells us how functional and interactive a network is. Social capital is high in a community when interactions between community members are encouraged and take place regularly. Organizations interested in the success of LDC should take every opportunity to bring educators together to learn alongside one another, meet and discuss issues, and develop bonds of support. It is also important for educators to understand the value of increased connections with their peers. Every effort should be made to develop tools that encourage connections and also track and incentivize behaviors that lead to greater connections among peers both in collective environments such as convenings and also outside of them. Subtle rewards and reminders could go a long way to teaching educators how to make effective connections in the LDC network.

DISTRICT LEVEL NETWORKS

As discussed earlier, the vast majority of communication in the LDC network occurs at the district level. There is also little evidence to suggest that state-level connections are as good as, or even better than, connections to peers inside of districts. Peer-to-peer support is far more likely to occur at the district level between those who are geographically close to one another and likely more familiar with one another on a personal and environmental level.

The previous section examined the question of how experience and peer-to-peer support influence positive LDC outcomes at the state level. However, the majority of meaningful cooperation on LDC-related activities occurs at the district level. This section investigates the influence of network dynamics and communication at the district level on some of the same positive LDC outcomes discussed in the previous section. The goal of the following analyses is to ultimately develop a picture of how certain districts, and the characteristics of those districts, lead to more engaged adoption and implementation of LDC.

WHAT IS THE IMPACT OF NETWORK COHESION WITHIN DISTRICTS ON MODULE ACTIVITIES?

One of the most basic measures of network structure is that of cohesion, which is the degree to which a network is connected. Cohesion is expressed as the proportion of connections present in a network relative to the total number of possible connections in that network. In this context, cohesion identifies how the average number of communication partners an educator has relates to the most connected network possible, as defined by the data regarding the sets of educators within a district and their relationships to each other.

Cohesion

Cohesion describes the overall level of cooperation or communication in a network. Networks where each actor communicates with a large proportion of the other actors in the network are considered cohesive.

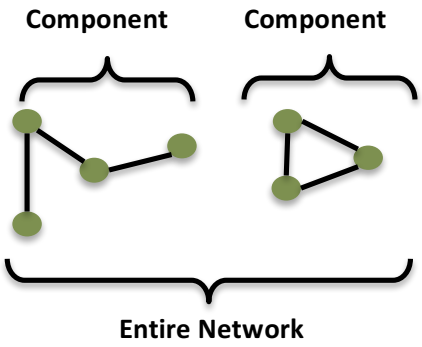
Generally speaking, cohesion scores in networks such as these that are populated through self-reported data are very low. With nearly 3,000 teachers surveyed, it would not be reasonable to expect a high degree of cohesion in the networks constructed for this study. Even so, there was an interesting variation in the cohesion of the district networks observed. Cohesion, or density scores, ranged from .008 to .092. In general, smaller districts were the most cohesive as there was a greater likelihood that a higher proportion of teachers would know each other than in much larger districts.

An important question to consider is how relative network cohesion influences engagement with LDC. The general level of cohesion is captured in other important measures of network connectedness, specifically, **fragmentation** and **number of components**. In general, increasing fragmentation and the number of components in a network negatively impacts the level of communication network-wide. This means that members of the network will not work as efficiently together. Less cohesive networks display lower levels of social capital and trust, so there are fewer positive outcomes, in this case participation in LDC enrichment opportunities, than the overall network would like to see. As cohesion levels decrease in any district network observed, it is expected that engagement with LDC opportunities will also decrease.

Fragmentation and Number of Components

Fragmentation is a measure of how disconnected each actor in a network is from every other actor in a network. The measure is expressed as the proportion of actors that any individual cannot reach through some mode of contact. High values indicate that the network is less cohesive as high percentages of actors cannot reasonably connect with one another.

Number of Components measures cohesion in a network by counting the number of disparate elements, or smaller networks that make up a larger network structure or community. The more network components there are, the more small networks there are that don't link up with one another, and therefore the less cohesive a network is.



For the following analyses, six districts that had relatively high response rates to the network survey were examined. Although there is no magic number to be able to perform these descriptive analyses, these networks possessed a larger number of connected educators than the others.

The analysis of how network cohesion affects LDC engagement in districts in Colorado includes three measures of LDC engagement: the number of modules authored, juried, and implemented. Overall results revealed that when communication and collaboration between LDC educators increased the level of LDC engagement also increased. In other works, the more educators are connected in a district network, the more they participate in all three LDC activities.

Looking across different district LDC networks, there is evidence that some district networks are more fragmented than others. Fragmentation occurs when there is less communication happening between LDC educators. Networks that have lower levels of fragmentation indicate that there are more connections between LDC educators. Overall, differences in the amount of fragmentation among district LDC networks means that educators in some districts make more connections with other educators, which then makes their district network less fragmented. When fragmentation goes down (i.e., the level of communication and connections between educators increase), results reveal a moderate correlation with module authorship and jurying (0.52 and 0.48) and a strong correlation (0.74) with module implementation. When networks become stronger and more cohesive (i.e., less fragmented), as defined by the patterns of

communication increasing, there is a positive impact on how much educators engage with authoring, implementing, and jurying modules.

This same relationship is found when examining how the number of components in a district network affects the level of LDC engagement, and this relationship is even stronger in some cases. Specifically, it was found that when educators in a district are more connected to a large network structure, as depicted in Figure 10, they write and jury more modules. Furthermore, it was found that when a district network contains more components, as depicted in Figure 11, educators are more likely to communicate with a small group of peers rather than a larger network or community, which consequently leads to writing and jurying fewer modules.[3] Overall these results indicate that cohesive networks, wherein individuals are somehow connected to more people in the overall network, create supportive environments in which LDC educators can thrive. When avenues of communication exist, educators may have access to support, information, and resources from their peers that guide them into deeper engagement with LDC. Overall, these outcomes benefit individual educators and the LDC network as a whole. Cohesion is related to social capital, which once again proves how social capital is a driver of behavior that benefits the LDC network.

Figure 11: Most Educators are Connected to the Large Red Component

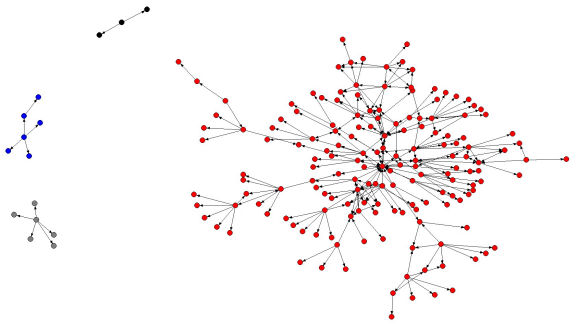
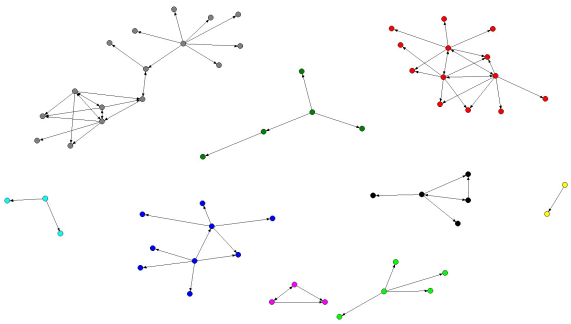


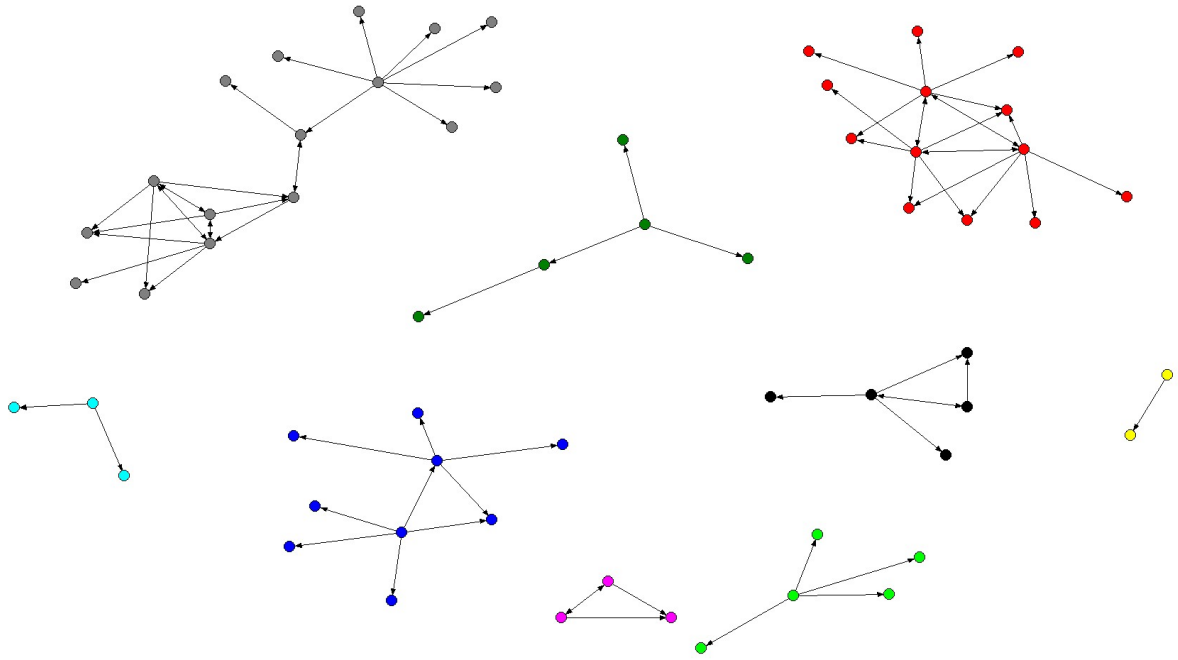
Figure 12: Most Educators are not Connected to a Large Network Structure



[3] Reducing the number of components in a network was strongly correlated with increased module authorship and module jurying (0.93 and 0.64). There was not a strong correlation between the level of cohesion as measured by components and the average number of modules implemented in a district network.

To illustrate these findings and the mechanisms at play, it is useful to look at the network graphs associated with some of the least and most cohesive networks in the data. Figure 12 below shows the network of LDC educators in the least cohesive district as measured by both the degree of fragmentation in the network and the number of components. In this network there are pockets of communication between small groups that are not connecting with other groups. Therefore, the vast majority of educators in this network are disconnected from the network structure, meaning they are not making efficient use of the possible connections in the network. The lack of cohesion here is also evident from the network graph that displays in different colors the nine individual components in the network. There is very little connective tissue connecting each member of the district to one large component, and there is little connective tissue between components.

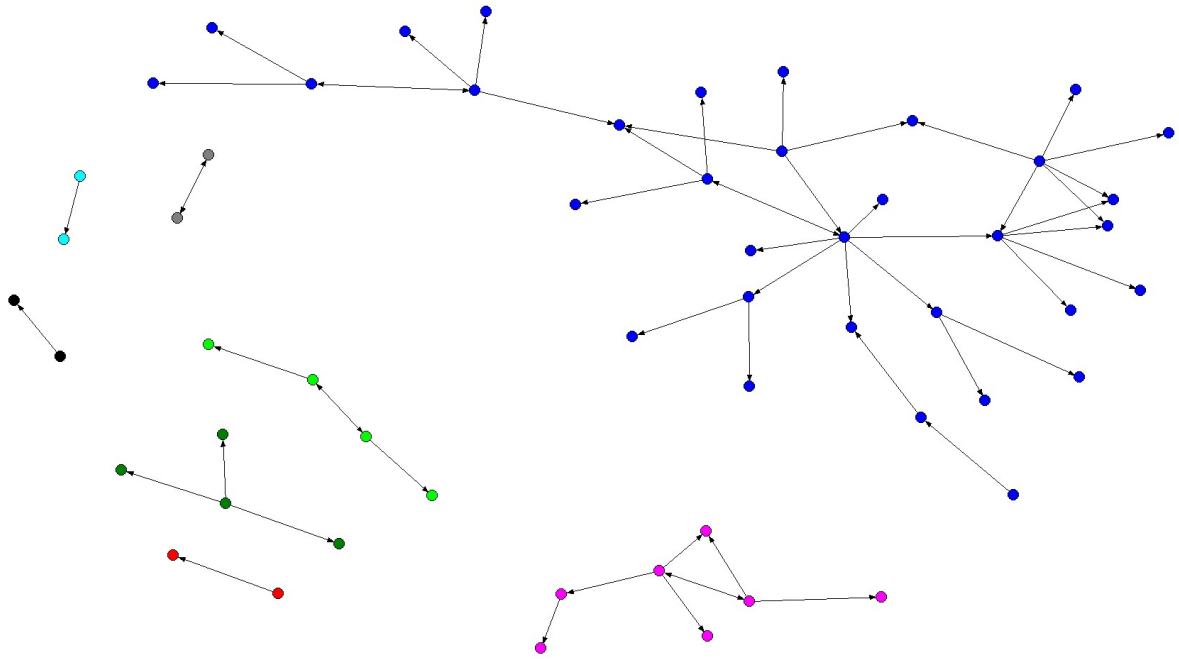
Figure 12: The Least Cohesive Network



The lack of cohesion in this network has two important negative impacts on LDC engagement. This district produces fewer authored and juried modules compared to more cohesive district networks. As noted throughout this report, cooperation is at the heart of the LDC mission and significantly influences participation in LDC. The educators in this district have few pathways of communication between the members of the network, and the network itself seems to be made up of hives of communication. Although communication between members within each component may be beneficial, there is a large disconnect in the communication across the network as a whole. If the separate component groups within this district were more connected to a larger network structure, information would be able to flow throughout the network because more educators would be tied into it.

Another district analyzed had a similar pattern of disconnected educators, as shown in Figure 13, but there is an important difference. Although there are still a relatively large number of components in this network, there does appear to be one rather large component containing numerous educators and pathways of communication. If pathways could be created between members of this larger component and the more isolated educators within the other disconnected component groups, then there would be a vast improvement in network communication and likely LDC engagement.

Figure 13: Less Cohesive District with a Large Component



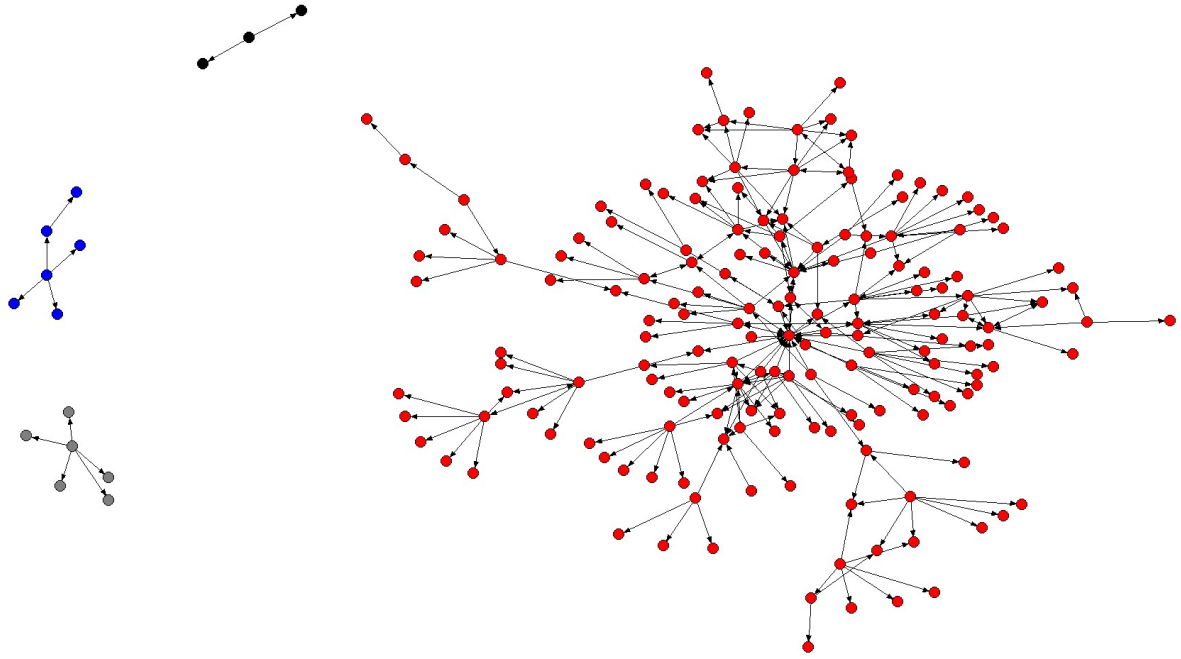
There was one district that stood out as the most cohesive networks as measured by both fragmentation and the number of components. There are a number of important aspects of this network that are likely the cause of the elevated levels of LDC engagement observed. As seen in Figure 14, this network is made up of one large, and relatively dense, group of connected educators and three smaller outlying groups. Focusing on the large red component, there appears to be a high degree of communication going on, as evidenced by the tight clustering of educators and the large number of lines connecting them. This high degree of connectivity gives each educator in the group much greater access to information shared by any one person when compared to the less cohesive networks described above. There are also many educators in this network that have the ability to gather information from some educators and pass it along to others in different groups within the network. This pattern of communication builds community and support, which leads to higher engagement with LDC.

There is another important feature of this network that speaks to the level of communication and support within the network. This network, and other more cohesive district networks, have a relatively large numbers of **cliques** within their networks. Cliques can be hives of cooperation that cultivate high levels of information and expertise that can then be shared out into the broader network. These strong groups with equally strong communication ties are leaders within a network and therefore a larger number of cliques can increase the level of information in a network.

Cliques

A **clique** is a subset of actors in a network with a very tight connection to one another. The members of a clique communicate with one another far more than they do with the rest of the network. Unlike components, cliques are embedded within a network structure and connected to the members of the larger network. Just as a network can benefit from influential actors, cliques behave like influential clusters that can deepen knowledge through their internal communication that they can then share out into the broader network.

Figure 14: One of The Most Cohesive Networks

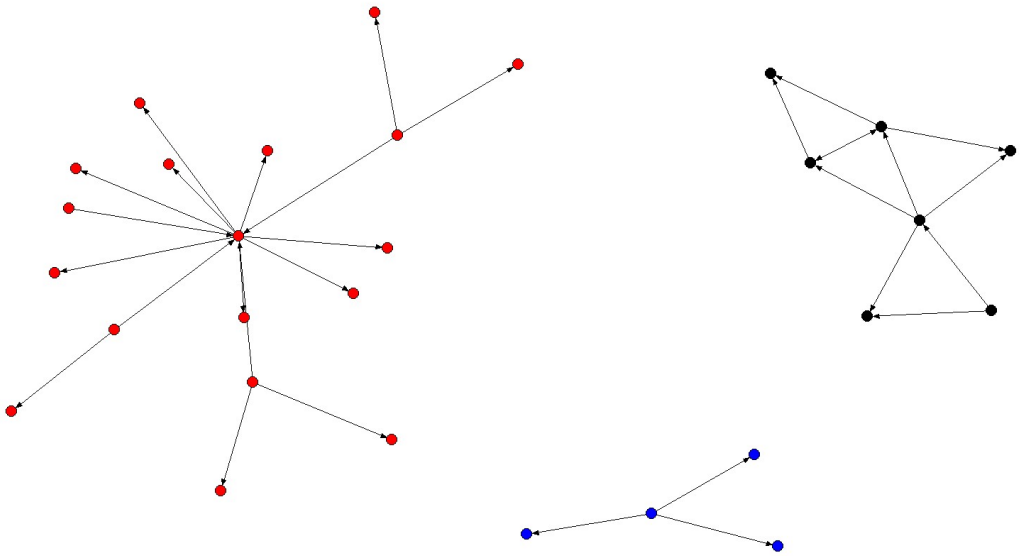


This district is a good example of a cohesive large school district that has a great capacity for educators to support one another. However, there are a large number of smaller school districts in Colorado and some display high levels of cohesion and support despite their smaller numbers and capacity. The next district is among the most cohesive LDC networks in the data. Though the image of this network in Figure 15 may seem more sparse than the previous one, it actually has the fewest number of components and has the lowest level of fragmentation, making it the most cohesive district LDC network observed.

It is also the smallest district observed, leading to an interesting question for consideration in future research. What is the effect of district size on communication and cooperation for LDC

levels of engagement? In this case, the district has the highest level of module authorship and second highest level of module jurying among the districts we observed. This example offers anecdotal evidence that perhaps smaller districts may be positioned to be more internally supportive than larger ones. Perhaps there is a greater feeling of comfort among the smaller group of educators, or maybe there are closer ties between educators and leaders. We cannot determine the causal mechanisms at play within the limits of this study, but the evidence gives good reason to look at the differences between large and small districts more closely.

Figure 15: The Most Cohesive Smaller District



CONCLUSION

Peer-to-peer support is at the heart of any successful community of educators using LDC. Educators involved in LDC in Colorado value peer support and prefer to learn with and from other educators involved in LDC, generally in their own districts. There are two important factors found that significantly influence greater levels of engagement with LDC: years of experience and the level of peer-to-peer support.

Experience is key to understanding the inner workings of LDC, which in turn influences the knowledge and understanding of how further engagement with LDC can be beneficial to individual educators and the LDC community as a whole. Experience also yields expertise that pushes people to engage at a deeper level with more complicated and involved opportunities.

Although experience is key to growth in nearly any endeavor, the unique community surrounding LDC implementation also places a high premium on peer-to-peer support. The social capital embedded in the LDC community is critical in making it strong and productive. The LDC network gets its strength from the connections made by educators within the network. Furthermore, when peers connect through the LDC network, they are able to form productive bonds that can far exceed the benefits of casual support. A strong bond is formed when peers connect on a substantive issue, as they can provide knowledge, resources, and perhaps most importantly, moral support that yields high levels of confidence and value for the wellbeing of the LDC community. The greater the level of peer-to-peer support, the greater value each member of the network has for the wellbeing of the community and the more likely they are to engage more deeply in it. When educators connect, LDC succeeds. Therefore, every effort should be made to build, create, and foster connections between LDC educators in Colorado and other states.

RECOMMENDATIONS

There are a number of different concrete steps that organizations who support the LDC community can take to increase educator experience, retention, and connection to their peers.

1. **Facilitate more interactions and trainings of LDC educators within districts**: Peer-to-peer support is critical. Organizations that support LDC should take every opportunity to create more connections among its educators. Because LDC educators are likely to communicate with and benefit from their peers within their district, there should be ample opportunities for peers to meet and learn strictly within their own district.
2. **Facilitate more interactions and trainings of LDC educators across the state:** Although peer-to-peer support within districts is critical, it is also important to open and maintain lines of communication across the state. All districts, no matter how experienced or internally connected they are, could benefit from collaborating with other districts grappling with LDC. Organizations that support LDC should allow for time and structured work at LDC convenings, where educators are encouraged to make connections with peers outside of their district.

3. **Create systems to help educators understand, track, and monitor their activities that increase the connections in their LDC networks**: Gatherings, conferences, and other LDC convenings are a great way to bring people together and encourage them to connect. However, most of the year is not spent this way, and maintaining greater connectivity within the LDC network requires constant attention. It is recommended that a behavioral monitoring technology be created; this technology would allow users to track their LDC-related activities and compete with themselves and others when engaging in activities that benefit the LDC network. There are clear activities that lead to making new connections with peers, and there are some that are less clear. By creating a fun, portable, and user-friendly technology to help track behavior that leads to increased connectivity, the LDC community will have the ability to create much stronger and sustainable networks in any district or state.