Parent and Educator Perspectives on the Benefits of an Online Space to Promote Offline Program Collaborative Learning

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Abstract. This multiple perspective, qualitative investigation with parents and teachers/teaching assistants provided insight on values of a virtual platform to aid parent collaborative learning in a dual focus early childhood program. Benefits were viewed as complementary or supplementary to face-to-face program components and context. Parent access to information about their children not available to them during program participation may deepen understanding and strengthen feelings of connectedness, particularly important to parent-teacher relationships. While there was synergy on most platform benefits, teachers did not observe parents' value in maintaining the program climate of trust and safety, and extending feelings of community. These may be essential for the platform to represent the learning supports aligned with the offline program experience. Study findings lead to hypotheses on the role of an online environment in parents' mental models of programs for collaborative learning, and in social presence that strengthen collaborative learning.

Virtual environments and interactive digital applications hold powerful potential for extending learning beyond face to face settings. Efforts to hybridize formal K-16 education with complementary technologies show positive impacts on student collaborative learning outcomes (e.g., Heflin, Shewmaker, Nguyen, 2017). Less well studied is technology-enhanced learning in nonformal education and with adult learners, specifically parents of young children who participate in community-based education programs. These learners and settings are critically important to the wider study of computer-supported collaborative learning. There is obvious societal value to promoting parenting role competence. And nonformal education group-based programs for parents prove successful at facilitating domain and practice learning through collaborative inquiry and reflection (Campbell & Palm, 2018). The conscientious integration of technology in ways that complement nonformal program aims for parent learning is rare (Strickroth & Pinkwart, 2013). The current study extends the authors' work employing design-based implementation research (DBIR) (Penuel, Fishman, Cheng & Sabelli, 2011) to explore technology integration in a dual focus early learning program (Walker, 2017).

Theoretical and empirical background

Socioconstructivist perspectives on parent learning view the acquisition of knowledge about parenting and the self in the parenting role as a continuous process, involving reflection of experience and observation of and interaction with others who reinforce norms and validate experiences (Azar, 2003). As facilitated in group parenting education, collaborative inquiry occurs in discussion, critical self-reflection and exploration of the role through the sharing of experiences. This encourages the development of mental models, or conceptual schemes that guide parent action (Lam & Kwong, 2012; Marineau & Segal, 2006). Facilitators foster group cohesion and social capital through a climate of respect, trust and security (Campbell & Palm, 2018).

Research on technology's role in parent social learning has largely focused on individual participation in what Henri and Pudlelko (2003) label 'communities of interest' (e.g., specialized groups on social media) (Nieuwboer, Fukkink, & Hermanns, 2013; Zero to Three, 2016). Parents seek others online for information and support in ways that complement the personal and professional sources in their lives (e.g., family, friends, the pediatrician) (Zero to Three, 2016). And their investment in these online contacts varies with their technology comfort, and access. To a lesser extent, parents may participate in structured online parent 'learner communities' and research suggests benefits similar to offline collaborative settings (Gray, 2004). Online formats may also blend effectively to meet offline learning program aims. For example, Guldberg and Pilkington (2006) observed that, as facilitated by a trained peer as part of a credential program, a complementary online community for the caregivers fostered context (creation of a safe space, defining common values) and process (emergence of challenging questions, resolution-focused goal attainment) dimensions of collaborative learning. Theoretically then, if parents in a nonformal education program benefit from a collaborative, constructivist format offline and experience an online complementary experience, learning gains would be greater. This was the premise for our platform design and implementation research, as discussed below.

Social learning technology and the early childhood family education program

Minnesota's Early Childhood Family Education (ECFE) is a parenting education program that adheres to constructivist principles. Operating through local school districts, ECFE offers weekly no/low cost two-hour classes and access to community resources to parents of children from birth through age five (ECFE.info). During the classes, parents and children interact together for the first hour, guided by licensed early childhood and parenting educators, then separate for the second (Figure 1). Unlike other group parent education, ECFE does not use an established curriculum; educators tailor learning content to individual groups, guided by field guidelines of early childhood program quality (Minnesota Department of Education, 2001). ECFE sites generally offer multiple class sections per site and hold several site-wide, all-family events per year. ECFE research has demonstrated processes and contexts of learning and instruction consistent with collaborative learning principles (Campbell & Palm, 2018). Weekly discussion time with other parents, as facilitated by parenting educators, fosters learning through information exchange, reflection on experiences and joint problem solving. Attention is given to a climate and context of support and respect. The first authors' own research indicates that parent relationships fostered in ECFE endure beyond the program and are supports throughout their child's life (Walker, 2018b).
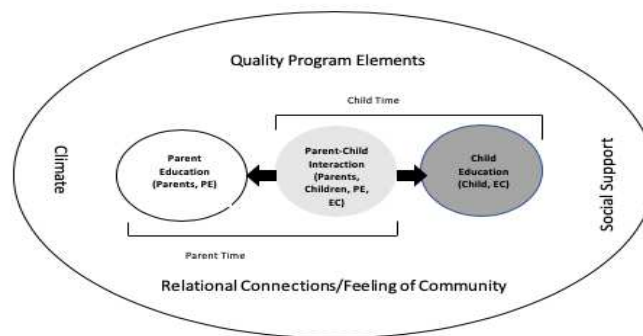

Figure 1. Elements and Program Structure of ECFE. (PE = parent educator; EC = early childhood educator).

Partnership with an ECFE site in an urban school district resulted in the development of an online platform to support ECFE's learning objectives (Walker, 2017). Participatory design research revealed parent preference for between-class social connectivity, information about parenting and about their child's learning; employing technology that was easy to use, mobile and ensured privacy (e.g., restricted access to class pages). The developed platform features a Facebook-like news feed for posts and discussion, and area for announcements, a shared calendar, dynamic photo album, external links, and members visual display (Figure 2). A user dashboard provides access to class pages, private messaging and notifications. Posts can be directed to the full site or to selected classes. Launch of the completed platform occurred in early 2017. Google Analytics tracking to the end of the school year revealed steady use by repeated visitors, with approximately ⅔ of sessions (i.e., group of site interactions per visit) by parents. Expanded platform use by additional ECFE sites in the subsequent school year showed similar proportionate use by parents (Walker, 2018a).

To date, investigations of the virtual platform show promise regarding usability, perceived usefulness by parents and staff and integration into program operations (Walker, 2018a). Contributing to new learning theory (Penuel, et al, 2011), requires deeper examination into cross-environment collaborative learning by parents inclusive of the roles played by teachers. Parenting educators are key to the parents' meaning making process (Lam & Kwong, 2012). And in early childhood settings that also serve parents, the perspectives of teachers and parents represent their adult roles (teacher; learner, parent) and are proxy for the children who also participate (Katz, 1993). Multiple perspective research allows a more complex and nuanced understanding of the shared experience [so that] views can be situated within the social relationships wherein they are constructed (Vogl, Zartler, Schmidt & Rieder, 2018, p.179).

Method

In-depth interviews with multiple perspective qualitative analysis were employed to understand shared and unique perspectives from teachers, teaching aides, and parents on technology's role in promoting parent collaborative learning in ECFE.
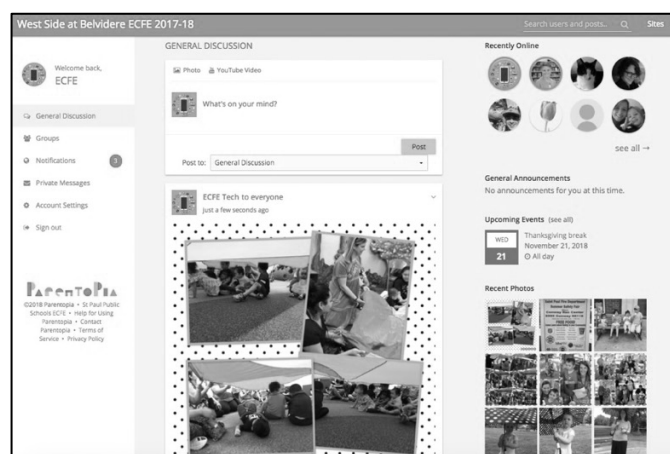
Figure 2. Desktop view of ECFE virtual platform.

Sample

The sample consisted of 25 parents (19 women, six men) and six ECFE staff members (five women, one man) from the original ECFE design site. That site and parents for the study were selected for their demographic diversity and representativeness of families who attend ECFE in the school district. Parents were also sampled to represent all 8 weekly site classes. They ranged in age from 20 to 57 years ($M = 35.3$, $S.D. = 1.5$), and reported from one to six children ($M = 2.7$, $S.D. = 1.7$). Five parents reported caring for children with disabilities. Six parents came from the two Spanish-speaking classes. Parents were fairly evenly distributed by length of program participation (first year to more than 3 years). Staff held positions as licensed teachers (2 parenting educators, 1 early childhood teacher; all female) and as classroom assistants (3; 1 male). Their years of working in ECFE ranged from three to 35 years ($M = 21.3$). Staff ages ranged from 39 to 56 years ($M = 48$).

Data collection and analysis

Semi-structured interviews explored participation or instructional experiences with the ECFE program and the use of technology in ECFE. Each interview lasted on average 1 hour (range: 45 minutes to 3 hours, 30 minutes). Audio-recorded interviews were conducted at the ECFE site by one of the three trained interviewers. Informed consent was obtained from participants prior interviews. Interviews were transcribed to text, then audited for accuracy by a second transcriber, and pseudonyms applied to all names identified for confidentiality.

An informed constructivist grounded theory approach (Charmaz, 2014; Thornburg, 2012) guided coding and analysis. Additional considerations in coding and analysis were deployed to compare within and across groups consistent with multiple perspective analysis (Vogl, et al 2018). The coding process with memoing consisted of three phases, initial coding, focused coding, and theoretical coding. Coders were assigned in pairs to analyze parent and staff interviews separately and together to enhance trustworthiness (Denzin, & Lincoln, 2018). During initial coding, transcripts were read and coded with the incident-by-incident approach, informed by sensitizing concepts from the literature on collaborative learning in parenting education. Second, focused codes emerged after reviewing initial codes. Themes identified within one relational unit (e.g. parents, teaching staff) were compared by coding pairs to generate central theoretical codes by unit. Finally, theoretical codes emerging from each relational unit were compared with each other. The themes emerged from staff and parents were compared across pairs of coders to understand the meanings of the perspectives, and shared and differing aspects of the perspectives.

Results

A summary of parent and staff perspectives on collaborative learning as supported by the virtual platform is provided in Table 1. Learning supports were identified as process (e.g., aiding the acquisition or interpretation of content) or context (e.g., climate, tone) and as being supplementary (in addition to) or complementary (an extension of) the face-to-face program experience.

Table 1. Perspectives on technology benefits to collaborative learning in ECFE

Construct	Evidence
Information about Children *Process/Supplementary*	Parents - Positive emotion at seeing pictures of children in classroom while away - Feel taken care of, thought of by staff - Understand more about child and children Staff - Opportunity to add information that parents don't get while in parenting education - Reflect interest by parents to learn more about children in classroom - Strengthen relationships between parents and teachers:
Engagement with parenting content *Process/Complementary (main)/ Supplementary (secondary)*	Parents - Access information if can't attend (supplementary) - Share information with co-parent who can't attend (supplementary) - Gather information from parents in other class supplementary) - Read or view before or after class (complementary) - Get advice and information from parents and teachers (complementary) Staff - Content to stimulate thinking before or after class (complementary) - Additional materials provided in handouts, drive links, URLs to deepen learning (complementary/supplementary)
Relational/supportive engagement with families *Process/Complementary*	Parents - Support to parents from other parents, from staff - May use with other methods to connect with family and friends for support Staff - Continue to provide 1-1 communication of support to parents. - Sharing images and videos with other children and families helps retain connections beyond class, over summer.
Program communication and information *Process/Complementary*	Parents - Easy access to program reminders, events, 1-1 communication - Maintains 'idea' of program continually availability Staff - Easy provision of program reminders, events, 1-1 communication - Makes work more efficient; easier to complete administrative tasks
Climate, tone, safety, privacy and trust *Context/Complementary*	Parents - Feels like a safe space to post and view pictures of my child - Tone in discussion similar to what is experienced face to face - Appreciate member only access for privacy
Maintain Community *Context/Complementary*	Parents - Able to maintain connections to others that extends community - Able to connect and see families who attend other classes. Represent diversity in community.

Supplementary information access: Child

Of all identified, this was the dominant subtheme expressed by parents and by staff. Both observed how teachers and occasionally, other parents posted pictures or videos of children. At times they augmented the images with text to identify developmental gains or processes. Parents expressed appreciation for the chance to learn more about their child, and what their child was doing in the classroom when they were in parenting education. Parents spoke with pride at seeing their child's activity or accomplishment; some also spoke of learning more about the child in context with other children. They also felt cared for by staff. Mother of 2, Mia said, "*So it's nice to, like, have them vested in, like, 'hey the parents probably want to see their kids doing this'.*" For early

childhood staff who have limited interaction time with parents, it was the opportunity to help parents learn more about the child and child development. Staff also shared positive emotions about the exchange: *Teacher Jade: "You know, I think that, that's a priceless tool, because in the moment I can have that [image of what a child is doing] with me, and I can look back to it; I can share it with the parent. I can say that I'm noticing something changing. We can look for patterns together.* For both parents and early childhood staff, the opportunity and action in posting and reading/seeing information about the child appeared to strengthen the sense of connection.

Supplementary information access: Parenting

Parent access to information about parenting when they weren't in class due to absence or inability to attend (as is the case of many co-parents) was less frequently but consistently mentioned across parents and the two parenting educators. The parenting educators felt that this helped them better reach all members of the class learning community. Parents appreciated feeling caught up. Supplementary access also meant learning from someone in a different class. Stella noted, *"She had a special needs child ... and she put an article online that we could all read.... that's very cool and I think we need to know more about that...[there are] cool things that I can access now and I can learn more and I can become a better parent now because I get to see what everybody's doing"*

Parenting information complementary to classroom discussions

Parenting educators appreciated being able to post a video, reading or webpage to stimulate thinking before the weekly class or extend discussion afterward. Although parents were generally positive about having access to this information (e.g. *"I think that would be really valuable because there's stuff that we're all interested in and I'm sure there's information and resources that it's being drawn from and it might be interesting to spend you know rather than flipping through Facebook, one night."*), few spoke about continuing discussions outside of class. As mother of 6 Bella observed,

> *"You know and that's kind of sad but it's the truth because our lives are so busy and fast moving. And then for me, I don't want to scroll through and see like what questions someone asked today, because they're not really my questions. I don't know. So if I have a burning question or something that's really is on my mind, I'm not going to probably take the time to like post it and then wait to see if anyone responds. Because it's not immediate as a text would be or a discussion with someone face to face."*

Continued access to program information

Parents and teachers liked easy access to information for registration, events, activities and reminders. The platform was a characterized as a one stop location to coordinate and find site information. Parents remarked that this helped simplify their busy lives; staff liked the efficiency of reaching more parents, more quickly. Reduced time in email and phoning, freed up time for teaching or other program responsibilities.

Access to support from parents and teachers

Use of the platform as a vehicle to continue supportive connections between parents, and from staff to parents was a common theme across parents and teachers, especially the parenting educators and one of the early childhood aides (who'd worked in ECFE for over 20 years). Three parents from one class spoke of using the platform to organize meals for an ECFE family who'd just given birth to triplets. Parents also relayed a sense of relief or gratitude to extend 1-1 access to the parenting educator. In turn, staff commented that the platform complemented other virtual and real time means for providing support to parents. Parenting educator Everly said,: *[...] you know I give parents my phone for texting, e-mail,[the platform] is great for that of course. And parents will call me, parents will text me. They'll reach out and...and not just me. I'm saying that sometimes it's a starter place. But I encourage them also to reach out to each other. So that's where the platform is helpful for that as well."*

Continuity of community and climate (parents)

A difference between parents and staff related to the platform extension of feelings of community, and program climate and tone. Parents observed this; staff did not. This quote from 21 year old Brooklyn conveys the extension of community:

> *"And just being able to kind of like someone's picture of their kids you know kind of makes you feel like you're friends with that person and so it has that very Facebooky feel to it and that*

creates I think a kind of that community. And maybe give you an idea, you know, 'oh I saw that picture of you guys doing this and that looks fun' and it gives you maybe something to talk about when you see them in class…I have used it to connect with people outside of class and say like 'hey let's have a playdate go to the park' kind of thing. So that's a nice way to keep building that community."

Parents were also vocal about the maintained tone of civility and the sense of safety that they felt from the private, ECFE member only access. As Lily stated:

"…having like a respectful place that we had just communicate with each other that you still feel like, ECFE feels like a safe space to me and I feel like Parentopia is kind of like, also it offers that as well, because they know that there is an administrator and there's not going to be any kind of negative thoughts or comments. I mean everyone's really supportive. Yeah and I think it's a place that I can kind of share my ideas too and with everyone and they can do the same"

Conclusion and implications

This study offers preliminary support that parents and staff alike find shared and unique values to an online platform as an extension of the face to face weekly program, and identify a variety of benefits to collaborative learning. Platform interactions allow for continuity of connection (important for parents with infants, multiple children and single parents, and for co-parents and other caregivers who cannot attend). It extends access to parenting content, emotional and informational support, and to program events and activities. And significantly, it serves as a means to receive information about the child that the parent can't acquire due to the program structure that separates parents and children. Staff see the platform as improving the quality of their teaching and outreach, it may make their work easier and more efficient, and this may bring a sense of emotional satisfaction. While there is potential evidence of the platform's practical value to collaborative learning, insights from this study also suggest possible theoretical or conceptual advancements.

Strengthening parent-teacher partnerships and educator presence

In the traditional ECFE program, parents separate from their 2 ½ -5 year old children during parenting education time and leave their children in the capable hands of the early childhood staff. While they look forward to time to themselves and the interaction with other adults for reflection, sharing and discussion, many wonder about their children's activity and happiness. The platform allows staff to post information, videos and text-augmented photos of the child(ren). Because of the community (class) and site (families) nature of the program, pictures of the child with other familiar children can help reinforce the parent's sense of the child in a wider social context. Parents expressed a range of positive emotions when voicing appreciation for the information about their child provided by the staff. Many conveyed sentiments of feeling closer to staff. In turn, early childhood staff who cannot interact with parents as much during the all family parent-child interaction time appreciate the ability to share information in other ways. Parents' sense of learning community membership is not exclusive to peers, but includes their children and ECFE staff (Walker, 2018b). Children are the reason that parents join ECFE, and raising healthy children is the value that all adults – parents and teachers - share in the program. Supplementary interactions may strengthen the sense of trust and connection between parents and professional staff who teach and care for the child (Lauluvein, 2010). Stronger parent-teacher relationships in early childhood bode well for children's learning outcomes and set the stage for partnerships in later school years (Froiland,Peterson & Davison, 2012).

This aspect of collaborative learning by parents facilitated online by teachers' actions may also have an emotional component. Sharing and receiving information about the child at the center of the teacher and parent's interest in ways that bring satisfaction to both may deepen the learning experience and offer a reciprocal interaction that sustains learning online and offline. Teachers like Everly observed the benefits to relationships: *"the more the parents see the teachers posting and they see their name up there and they see their face and they see what they posted they see a photo. Parents are bridging- they're connecting more. They're building stronger relationships."*). Lehman's (2006) framework of presence in online learning suggests that addressing emotional considerations in interaction activities can help learners' confidence, focus and excitement to learn collaboratively.

The importance of community and climate: Lessons for professionals

Whereas parents appreciated how the platform mimics the climate, tone, privacy and feelings of safety of the face to face site, and extended community and connection to others who share a parenting and program identity, staff didn't speak to these. The difference may be due to the 4 to 1 ratio of parents to professionals in the study, affording more observations by the former. The difference however, may be due to differences in perspectives of *being* a community member vs one whose *job* it is to foster learning as community. Staff were more articulate about the specific technologies they use for instruction and communication, and pedagogical purposes related to sharing information, communication, extending class content and lending support. A focus on technology for teaching over the social experience of the learner may limit teachers from their seeing themselves as participants in discourse or as members of parents' learning community (Lauluvein, 2010). They may focus on providing content when a busy parent with other content resources may more highly value their presence and affirmation.

Staff may need guidance to extend community in ways that maintain the visual membership and emotional tone of the face to face program. This means encouraging families to post information about themselves, pictures from neighborhood events, and posting in a site-wide forum. It can also mean monitoring discourse to maintain exchanges in the civil, positive and nonjudgmental tone that led parents in this study to make favorable comparisons to the platform over their less then positive experiences with Facebook. Encouraging a respectful online climate and sense of community can help parents make connections across classes and build bridging social capital valuable to learning (Wenger, White & Smith, 2009).

The platform as representation of whole program participation experience

Parents, teachers and teaching assistants identified a range of ways in which using the platform served to complement the weekly face to face learning experience. These included exposure to parenting content curated by professionals, provision of up to date program information, access to supportive others, outlets for ongoing communication to peers and professionals, and continued visual and text reminders of membership in a learning community. As these informational, interactive and relational elements align with constructivist, collaborative inquiry approaches in parenting education (Campbell & Palm, 2018; Lam & Kwong, 2012) and represent the values and operation of ECFE, they may indicate the potential of a virtual platform as useful to the multiple process and context mechanisms that foster parent collaborative learning.

Theoretically however, the platform may also facilitate parent learning from a conceptual standpoint. That the platform serves many learning and engagement functions complementary to parents' ECFE experience may support parents' mental image of themselves as participating in a learning community beyond the weekly session structure. The notion is expanded as they are also "in the children's classroom" through the supplementary images and information about their children. This may give them a sense of participating in all components of the weekly program depicted in Figure 1. And as ECFE is a place that is positive, as busy, stressed parents, the platform sends the message of ECFE being continually present, reliable and responsive, and this may bring them comfort. This includes the consistently strong presence of staff who for some, function as significant emotional supports. So, the platform's ability to extend the 'idea' or mental model the program that parents affiliate with as a supportive space for learning with others, including staff, may be another complementary value of the platform for parents' collaborative learning.

This study is, to be sure, preliminary in its findings. It depended on the voices of parents and staff at a single ECFE site, about their experiences with a newly designed platform early in its implementation. Yet, there is promise in the findings to buoy continued platform implementation in the school district program that will allow use by larger numbers of parents and staff, at more ECFE sites. And it encourages further investigations in the program-platform coordinated role in parent learning. To date the platform is being used by eight ECFE programs in four school districts and reaching over 450 parents and teachers (Walker 2018a). The current findings validate employing design-based implementation research when identifying innovation for a long-standing face-to-face parenting education program. Attention to the needs of the program and of the participants and staff allowed development of a useful and possibly critical innovation to face to face parent education and extending adult learning benefits. Continued research on implementation of the platform will suggest avenues for its contribution to learner success and for sustainability within nonformal, community-based parent education settings.

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