

Teaching Partnerships: The Use of Peer Facilitators in the College Classroom

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This study sought to qualitatively examine an undergraduate faculty teaching partnership in an agricultural and extension education leadership course. The researchers implemented peer facilitation for the purposes of examining the student and peer facilitator perceptions to the peer facilitation process. Utilizing a social constructivist epistemology, the researchers conducted discourse analysis, content analysis, and interviews to address the research questions. Results revealed three emergent student themes of enhanced educational opportunities, relational benefits of peer facilitation, and student concern for the selection and roles of the peer facilitator. Analysis of the peer facilitator data revealed areas for potential change, areas of recognized student skill development, and perceptions of the unique contributions of the peer facilitation process. Both the students and the peer facilitators recognized areas for improvement and offered suggestions relating to the procedural development and instructor support of the peer facilitation process.

Keywords: peer facilitators, leadership, undergraduate faculty teaching partnership, peer learning

Introduction

The era of dwindling budgets and increased professional demands necessitates a reexamination of ways to optimize student involvement and facilitate increased learning. One way to enhance student involvement and learning may be through the use of student-assisted teaching. Student-assisted teaching is not a new concept in educational arenas.

Aristotle recognized the benefits of peer instruction long before the advent of empirical published research (Wagner, 1982). In 1789, Andrew Bell, attempted to circumvent disgruntled faculty by implementing a peer-led educational model, and by 1817, around 100,000 school children around England and Wales were being educated in a peer led manner (Fuchs, Fuchs, Mathes, & Simmons, 1997; Topping, 1998).

According to Miller, Groccia, and Miller (2001), students are an underused, renewable

resource who hold the potential to positively impact and shape the learning environment. Despite the tradition of peer utilization in the classroom, there is very little qualitative research which examines the more holistic impact of student-assisted teaching. Now, more than ever, research regarding the use of peers to support the learning of other students is warranted.

Theoretical Foundation

The educational theories espoused by both Vygotsky and Piaget established a foundation for student-assisted teaching. Vygotsky (1978) focused his Sociocultural Theory on the social process as a mechanism for learning. Vygotsky believed the development of higher mental function was a result of social interaction (Palinscar, 1998).

One of Vygotsky's foundational tenets, which provided a basis for student-assisted teaching, was the concept of a zone of proximal

development (ZPD). Vygotsky argued for the existence of two developmental levels, the actual and potential levels of development. According to Palinscar (1998), the actual, “refers to those accomplishments a child can demonstrate alone or perform independently,” (p. 352-353) whereas the potential level describes, “what children can do with assistance” (p. 353). The zone of proximal development refers to those tasks that fall within the potential category (Vygotsky, 1978).

Vygotsky believed a key element to successful learning was interaction with a more knowledgeable peer or adult. According to his theory, the more knowledgeable expert has the ability to structure or frame the dialogue in such a manner as to stimulate optimal learning (Palinscar, 1998). The longer the learner is exposed to the more knowledgeable individual, the greater the likelihood that the task will transfer from the potential to the actual level of development. Vygotsky (1978) firmly believed that peer collaboration and various forms of peer-assisted teaching have the opportunity to positively enhance student learning.

Relatedly, the theory of Jean Piaget corresponds in certain aspects to the ideas of Vygotsky. Piaget’s Theory of Cognitive Development, while less focused on social interaction, still stressed the importance of peers in the learning process (O’Donnell & O’Kelly, 1994; Piaget, 1965, 1985). Piaget identified three conditions which allow for equilibration to occur in intellectual exchange (Tudge & Rogoff, 1989). According to Piaget, partners must have a common scale for intellectual understandings, be able to conserve their own ideas without contradiction, and establish a condition of mutuality (O’Donnell & O’Kelly, 1994; Piaget, 1965, 1985). All three of Piaget’s conditions can be facilitated by peer-to-peer interaction.

The theoretical basis for student-assisted instruction encourages the synthesis of the social and cognitive theories of Vygotsky and Piaget. Through interaction with others, students may encounter the social and cognitive catalysts to optimize student learning.

Conceptual Framework

Learner-centered instruction, grounded in the theories of Vygotsky and Piaget, established the conceptual framework for this study. The

impetus for the creation and development of learner-centered instruction can likely be traced to the 1993 American Psychological Association (1993) document *The Learner-Centered Psychological Principles: A Framework for School Reform and Redesign*, and the Boyer Commissions (1998) publishing of *Reinventing Undergraduate Education: A Blueprint for American Research Universities*. The component of learner-centered instruction that further guides the conceptual framework is the concept of peer learning or student-assisted teaching (Zophy, 1982).

Topping (2005) defined peer learning as:

The acquisition of knowledge and skill through active helping and supporting among status equals or matched companions. It involves people from similar social groupings who are not professional teachers helping each other to learn and learning themselves by so doing. (p. 631)

The terms peer learning, peer-assisted instruction, and student-assisted teaching are often used and defined interchangeably in the literature (Topping, 2005; Topping & Ehly, 1998). Despite the subtle distinctions between the various terms, the underlying commonalities focus on the use of students to enhance the learning of other students.

The researchers focused on, and utilized, the term student-assisted teaching to provide a conceptual basis for this study. Miller, Groccia, and Miller (2001) defined student-assisted teaching as an:

Instructional process where undergraduates are given responsibility by faculty for portions of their fellow undergraduates’ learning experience. The degree of responsibility can vary from incidental assistance on a specific in-class problem or project, to full control over content selection, delivery, and assessment. (p. xv)

While the researchers chose to utilize the concept of student-assisted teaching, for the practical purposes of classroom application, the term peer facilitation was chosen for its presumed benign connotation to students. The researchers believed that the peer facilitator label was potentially less divisive and more

inclusive and welcoming in peer-to-peer interactions.

Purpose and Research Questions

The researchers implemented peer facilitation in an undergraduate leadership course and qualitatively examined the student and peer facilitator thoughts in relation to the peer facilitation process. The research questions guiding this study sought to examine the peer facilitation process in two distinct areas:

1. What were the student perceptions of the peer facilitation process?
2. What were the peer facilitators' perceptions of the peer facilitation process?

Research Methods

According to Guba and Lincoln (1989) adherence to the ideals of value-free objectivity is difficult. Guba and Lincoln stated that, "Values enter an inquiry through such channels as the nature of the problem selected for study . . . the choice of paradigm for carrying out the inquiry, . . . the choice of instruments and analysis modes, the choice of interpretations to be made and conclusions to be drawn, and the like" (p. 65). The researchers sought to utilize constructivist epistemology as a framework for discourse analysis methodology, as well as the methodological development of content analysis and interviews.

The research methods chosen are congruent with the epistemological and theoretical perspective of the researchers. Discourse analysis, textual analysis, and focus group interviews all served to elucidate the research data. Eichelberger (1989) described the work of constructivist researchers and stated, "They do a great deal of observation, read documents produced by members of the groups being studied, do extensive formal and informal interviewing, and develop classifications and descriptions that represent the beliefs of the various groups" (p. 9).

Textual Analysis: Content and Discourse Analysis

One of the primary methods utilized for data collection was two derivatives of textual analysis: content analysis and discourse analysis.

The research participants generated personal reflections concerning their experience with peer facilitators. These non-graded reflections were collected, analyzed, and coded for thematic content. Open, axial and selective coding were utilized for data analysis.

During the duration of the peer facilitation process, the participant researcher engaged in observation of the student-peer facilitator interaction. Field notes were taken with the goal of analyzing student-peer facilitator interaction. The discourse notes were analyzed and coded for thematic content relating to the research objectives.

Interviews: Focus Group and Individual

Focus group interviews were conducted with the six peer facilitators. Two semi-formal interviews and one formal group interview were conducted. The semi-formal interviews consisted of open ended discussion pertaining to the peer facilitation process and the formal interview consisted of open-ended questions, generated by the researchers, designed to solicit the facilitator perceptions of the peer facilitator process. The participant researcher conducted the focus group interview after the conclusion of the course. The peer facilitators received no grade, had already been paid, and the course had already concluded. In addition, the focus group was recorded, transcribed, and presented to all the researchers in an effort to address the potential for participant researcher bias.

Individual interviews were conducted with randomly selected student participants. Six consenting students were individually interviewed. The researchers asked several open-ended questions designed to encourage student feedback. Based on the interviews, field notes were taken and the interviews were analyzed for content relating to the research questions.

Data Collection and Analysis Credibility

According to Lincoln and Guba (1985) credibility is enhanced through prolonged engagement with the subjects of interest, persistent observation, triangulation, and member checks. According to Dooley (2007), prolonged engagement, "helps the researcher to build trust, develop rapport with respondents, and to obtain a wide scope of accurate data" (p. 38). In an effort to increase credibility, the

researchers utilized persistent observation by observing all participants, both students and peer-facilitators. Collected data was triangulated between students, peer-facilitators, and multiple researchers.

Furthermore, collected data was presented to individual student participants and peer facilitators to allow for member checks. According to Lincoln and Guba (1985), "The member check, whereby data, analytic categories, interpretations, and conclusions are tested with members of those stakeholding groups from whom the data were originally collected, is the most crucial technique for establishing credibility" (p. 314).

Transferability

In an effort to facilitate transferability, it is essential to describe the context and data in rich, vivid detail (Dooley, 2007). The context for this research was a junior level leadership course at the Ohio State University. The three credit course consisted of 33 students: 12 males and 21 females.

Prior to the beginning of the course, six upperclassmen who had previously taken the course were selected to serve as peer facilitators. A total of six facilitators were chosen based on the size of the class (33 students) and the availability of facilitator stipends. All six peer facilitators were of senior standing and female in gender. The term "peer facilitator" was chosen to avoid the stereotypical, power-laden image conveyed by the term "teaching assistant." Peer facilitators were randomly assigned to one of six student groups. Each peer facilitator was responsible for working with five to six students.

The peer facilitation position was voluntary and supported by a stipend. Consequently, peer facilitators did not receive college credit, were not graded on their efforts, and were not bound by work study requirements. Each peer facilitator was supplied a course text and assigned the task of teaching four chapters of course content, covering a three week span of time. The course instructor allowed the peer facilitators complete freedom in determining the manner in which the content was presented, and the peer facilitators were encouraged to be creative, avoid lecturing, and utilize any teaching technique, manner or setting they felt would best convey the information.

Prior to, and during the peer facilitation process, the peer facilitators met with the course

instructor. A series of four collaborative meetings allowed for the exchange of ideas relating to the development and support of course content as well as any administrative or procedural issues relating to the peer facilitation process. The course instructor rotated between peer facilitation groups, conducting participant observations, individual interviews, and member checks.

Dependability

Dependability was gained through the use of an "inquiry audit" to examine the research process and product for consistency (Lincoln & Guba, 1985). The student and peer facilitator data was coalesced into two respective documents (SR=student reflections and PFR=peer facilitator reflections) and line numbers were utilized to facilitate the inquiry audit. Unless otherwise noted, the data utilized to address research question one is contained in the SR document and data utilized to address research question two is contained in the PFR document. The inquiry audit was conducted by a third researcher who examined all data and research artifacts in an effort to ensure dependability of the results.

Patton (1990) believed the internal validity of research was enhanced through the triangulation of data. Thus, the researchers sought to provide the highest level of research credibility and meet rigorous validity standards by utilizing two of Patton's four types of triangulation: data triangulation and triangulation through multiple analysts. Data triangulation was attained by careful analysis of student reflections, researcher observations, and peer facilitator focus group interviews. Multiple analysts were utilized to ensure data analysis by both participant observation (course instructor) and non-participant observation.

Confirmability

In qualitative research, the concept of objectivity is replaced by confirmability (Lincoln & Guba, 2000). According to Mertens (2005), confirmability is the assumption that, "data, interpretations, and outcomes are rooted in contexts and persons apart from the researcher and are not figments of the imagination. Data can be tracked to their sources, and the logic used to assemble interpretations can be made explicit in the narrative" (p. 15). All participant data were identified by line numbers and can be tracked to the original sources. Confirmability

was enhanced through the use of multiple sources of data and multiple analysts

Results/Findings

Research question one sought to identify student perceptions of the peer facilitation process. Students were asked to write a non-graded reflection of the peer facilitation process and three main themes emerged. Themes included: enhanced educational opportunities, relational benefits of peer facilitation, and student concern for the selection and roles of the peer facilitator.

Enhanced Educational Opportunities

Participants indicated the peer facilitators were able to tailor information to the individual students and became “mentors,” “a wonderful resource,” and like a “personal professor.” The peer facilitator “...was able to help bridge the gap between our group of students and our course instructor because she knew exactly the types of things he was looking for and gave us possible suggestions on how we could meet everyone’s goals” (11–14 SR). Peer facilitators were described as aiding students in “retaining much more of the information,” (534) “helping us a great deal,” (25) and having “a tremendous positive impact in helping me better understand” (214).

Participants acknowledged and commended one of the peer facilitators for her willingness to ask how the students in her group learned and then she “organized the material around the requests and suggestions” (349). One student respondent stated, “Peer facilitators are great tools to use in order to develop college students’ interest in learning” (529–530).

Peer facilitators allowed for the opportunity to include structured and guided group work leading to “many good conversations” and “very good discussions.” The peer facilitator groups “...allowed us to learn better communication with people we had to work with, like a work setting would be, forced cooperation” (679–680). A student concluded, “...it is easier to learn from my peers than from some teachers” (263–264).

Relational Benefits

Participants indicated the peer facilitators were able to build strong working relationships

with students by being approachable which “made the class more comfortable.” Utilization of similarly aged peer facilitators provided a “person who could truly understand and relate to what we [students] were doing” (439–440).

The peer facilitators provided an outlet for students to “express how they really felt.” One student shared a frustration, alleviated by the peer facilitator,

I do not open up easily to professors as I see them as somewhat intimidating. I feel that it has been so long since they have been to college that they have forgotten what it feels like to be sitting in our seats (540–542).

Accessibility and timeliness of correspondence was presented as a concern by students with respect to professors. Peer facilitator usage lessened this concern with students. “I liked having someone besides the instructor who was easy to get a hold of for questions” (650–651). Voiced by a different participant “I also liked having a peer facilitator, because if I had a quick question regarding the topics or any assignments, I could just ask her (peer facilitator)” (219–220).

Students appreciated the chance to work with peer facilitators. “It was nice to be able to interact with someone more of our own age and in not as formal of a setting” (419–420). Qualities of the peer facilitators that were mentioned by students included “optimistic,” “pleasant,” “supportive,” and possessing a “friendly smile.” The working relationship built between the peer facilitators and the students transcended the walls of the classroom. “The peer facilitators had all been in our shoes at some point and could offer up not only help for the leadership class, but other classes that we were taking” (441–442).

The Selection and Roles of the Peer Facilitator

Students voiced concerns in the interviews and reflection papers pertaining to the selection of the peer facilitators and the role of the peer facilitators. Students expressed dissatisfaction with two of the six peer facilitators. This theme was consistent for all 11 students who comprised the two groups. The student concerns related to the content being taught and the interaction between certain peer facilitators and students. “The major problem with the peer facilitation, in

my opinion, was that no new content was taught during the entire time the facilitator was teaching” (116–117). One student gave some credit to the peer facilitator with reservation “... lessons that she taught were well thought out but seemed to lack content. In learning new subject matter I would rather be taught by someone with a large knowledge base of the subject area” (765–768).

Comments from other participants within the same two small groups stated that the peer facilitator “...did not exemplify the ideas of leadership we were taught in class” (82) and “was uninformative, leaving out important contact information” (70). To one student the peer facilitator appeared “...immature and not someone that I should look up to or learn from” (121).

Recommendations were presented by the students with respect to the previous concerns. “I would recommend being more selective when choosing peer facilitators for next year” (90–91). One student participant speculated about the concerns and made the following suggestions:

I found that some of them (small groups) did not have such a great relationship with their peer facilitator. Either their group did not want to get along, the members did not care to listen to someone practically their own age or the peer facilitator just did not care about the project or the group. These are all very possible problems that must be addressed if peer facilitators are to be used in the future. One suggestion might be to select only the best of the best seniors to be peer facilitators. Or even select the very best graduate students, which would allow for more of an age gap. (394–400)

The second area of concern dealt with the role of the peer facilitator. Some students were unsure as to the expected role of the peer facilitator. “I’m not sure what her role was supposed to be” (504) reflected one student. Another stated, “...I am still not sure what one (peer facilitator) is supposed to do” (160). Recommendations expressed by the participants included to clearly “...define what a peer facilitator is and the role they bring to our classroom” (775) and to make sure peer facilitators are “...better prepared on what to do” (175).

Overall Student Perceptions

Students in the course acknowledged the use of peer facilitators as “a great idea,” “a wonderful idea,” and innovative. “I have never been in a class where this idea was implemented, so I was interested to see how it would go ” (378–379). Use of peer facilitators “provided a valuable break from the traditional classroom. It offered us [small group] a time to discuss the topics at hand in a much more casual environment. We [small group] would encourage the future use of peer facilitators” (445–446).

A majority of the students viewed the peer facilitators as beneficial and recommended future use of peer facilitators in the course. “The idea of utilizing the peer facilitator is a good one and I would recommend continuing the use of them” (386–387). Another participant echoed the aforementioned comment saying, “I would like to see this type of set up be used again in future classes because I do believe it was beneficial” (691). One student commented, “Positives of the peer facilitator definitely outweigh the negatives” (795).

Research question two sought to identify peer facilitators’ perceptions of the peer facilitation process. In an effort to increase the credibility and dependability of the data and examine all participant data, a focus group interview was conducted with the peer facilitators at the conclusion of the course. Open-ended questions were asked in an effort to solicit the perceptions held by the peer facilitators. Themes emerged relating to areas of concern with the peer facilitation process, student skills developed as a result of peer facilitation, and unique contributions of the peer facilitators to the student learning process.

Peer Facilitator Concerns

The peer facilitators identified the relational aspect as an area of concern relating to the peer facilitation process. While the relational aspect of peer facilitation appeared to be beneficial, there were concerns expressed by the peer facilitators. “It was easy to get off track because we had a lot in common. I mean we are close in age and it got hard to stay on track at times” (24–25, PFR). A follow-up question to probe into these feelings was posed asking whether the peer facilitators felt they should have some control over the grading of the course. Three

peer facilitators felt it would have been beneficial to have some control over the grading in the course. Three peer facilitators deemed having control over the grading of the course was not necessary with one peer facilitator stating, “I wouldn’t have been comfortable giving out grades, and I don’t know that they would’ve been fair”(388–389).

The peer facilitators identified two areas of potential change in the peer facilitation process. Peer facilitators recommended increasing the contact time; however, when one peer facilitator posed the idea of increasing the contact time with the students, several peer facilitators voiced that they “...liked it the way it was.” Another recommendation from the peer facilitators was to encourage and even potentially require attendance of the peer facilitators in more class lectures taught by the instructor. One facilitator stated, “I didn’t realize how much it would have helped me to use some of the lectures that you (instructor) did” (172–173) followed by “I think seeing some of the lectures and knowing a little bit more background and information about what the students have done in class would be helpful”(180–182).

Student Skill Development

The peer facilitators identified several areas of skill development they observed from the students during the course of the peer facilitation process. Areas identified included: social development of introverted students, personal accountability, adaptability, communication, cooperation, networking, flexibility, and teamwork. A specific example shared by one peer facilitator included, “... one student in particular I think grew a lot in this group, and he was very quiet when we first started . . . he perked right up so I think that his social skills went up, and I thought it was really neat to watch” (253–258). Another peer facilitator summarized her thoughts by saying, “I think one of the biggest skills my group really grasped was teamwork”(298).

Unique Contributions

Facilitators were asked what they offered as a peer facilitator that the instructor could not. The unique contributions the peer facilitators reported they brought to the student learning process were one-on-one attention and a sense of being relatable. A peer facilitator stated:

I think as instructors grow older they may not clearly remember what it felt like to be a student struggling through college, or dealing with all these different aspects, and I think the fact that we’re going through what they’re going through right now helps. None of us have money, we’re dealing with scholarships, with grades in class, with another job, time commitments and everything they’re struggling with. So they’re seeing us doing everything on top of teaching them, so I think that’s something that they learned from us as well, where we can fit in where an instructor wouldn’t be able to. (366–373)

Another peer facilitator echoed a similar sentiment:

The students not only see us teaching in front of them and doing things with them, but they also see us in other facets of our life; winning awards, leading organizations, things like that. I think it’s very important. I don’t know if we exactly inspire them, but I’d like to think that we at least have an influence on positive behavior. (357–360)

Peer Facilitators’ Overall Perceptions

Peer facilitators described the experience as “liking it,” “it was fun,” and “a great opportunity...to grow and learn new teaching methods” (213). One peer facilitator stated, “I learned more as a peer facilitator than I did when I took the course” (415). When asked if the experience changed the peer facilitators in any way, the facilitators discussed how being a peer facilitator provided them an opportunity to sharpen their teaching skills and develop a deeper understanding of balancing formal and informal instruction.

Conclusions/Recommendations

Students appear to appreciate the enhanced educational opportunities afforded by the peer facilitation experience. The participants indicated that the peer facilitation process allowed for a break from the traditional lecture and provided an interactive environment which

aided in student learning. Students indicated the peer facilitators presented information in a unique manner which served to increase student communication and cooperation.

The theories of both Vygotsky and Piaget support the ability of peers to structure information in a relevant manner. Vygotsky (1978) believed that peers were better able to structure information because of their familiarity and understanding of peers' misconceptions, and Piaget believed that the disequilibrium, resulting from the contrasting viewpoints of other peers, would equilibrate based on further peer interaction (De Lisi & Golbeck, 1999; Piaget, 1965, 1985). The results of this research support the cognitive benefits associated with peer interaction.

Two of the major themes that emerged from the data displayed the participant's thoughts relating to the learning process (educational enhancement) and feelings relating to peer facilitation (relational benefits). De Lisi (2002) recognized the importance of both thoughts and feelings and stated that, "Thoughts are important because they delimit the child's capability in a given situation. Feelings are important because they provide the motive force for thinking and acting" (p. 9). The peer facilitation process allowed students to engage with each other and course content in a manner which stimulated both cognitive and affective domains.

De Lisi (2002) recognized that peer-to-peer interaction may result in dysfunctional interaction. This is clearly seen in the comment of one of the participants who stated, "During our class time with our peer facilitator, I felt like I was being treated like someone in high school or younger" (43-44 SR). Instead of directing limited cognitive resources towards academic content, the student invested precious resources in the analysis of interaction. Further research should examine the degree to which students devote cognitive learning resources to analyze the interaction as opposed to the learning.

Based on the results of this research, students found the contributions of two of the peer facilitators to be substandard. This result is not surprising considering the difficulty

associated with engaging in peer facilitation. De Lisi (2002) discussed the ability of peers to provide competent instruction and stated, "The ability to provide help of this nature requires very sophisticated social skills and metacognitive awareness" (p. 335). An analysis of the application documents of the two substandard peer facilitators revealed that both had less previous opportunity to interact in peer-type learning situations. Presumably, peer facilitators in question may have had difficulty employing sophisticated social skills and metacognitive awareness. During the duration of the study, it became quite apparent to the researchers through observation, conversations, and interviews that two of the peer facilitators struggled in meeting the relational, educational, and affective needs of the students.

The implementation of new teaching techniques requires careful planning and a wholehearted commitment to reflective practice; however, it is imperative for the classroom teacher to carefully construct the peer learning environment (Woolfolk-Hoy & Tschannen-Moran, 1999). While the intent of this research was not to provide a detailed methodology for the implementation of peer learning, further insight into the successful procedural development of classroom structures can be found in Woolfolk-Hoy and Tschannen-Moran (1999).

The participants in this research, emphasizing the relational and educational benefits, supported the continuation of peer facilitation, yet encouraged purposeful attention to administrative and procedural details. Careful attention to the selection of peer facilitators will assist in maximizing the potential benefits of the peer facilitation process. Research should be conducted to determine applicable criteria for selecting effective peer facilitators. Further research should be conducted to examine and measure the specific cognitive and affective gains associated with peer facilitation. In addition, an analysis of current research regarding ways to increase the efficiency and effectiveness of peer learning structures is warranted.

References

- APA Task Force on Psychology in Education. (1993). *Learner-centered psychological principles: Guidelines for school redesign and reform*. Washington, D.C.: American Psychological Association and Mid-Continent Regional Educational Laboratory.
- De Lisi, R. (2002). From marbles to instant messenger: Implications of Piaget's ideas about peer learning. *Theory Into Practice, 14*(1), 5–12.
- De Lisi, R., & Golbeck, S. L. (1999). Implications of Piagetian theory for peer learning. In A. M. O'Donnell, & A. King, (Eds.), *Cognitive Perspectives on Peer Learning* (pp. 3–38). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Dooley, K. E. (2007). Viewing agricultural education through a qualitative lens. *Journal of Agricultural Education, 48*(4), 32–42. doi: [10.5032/jae.2007.04032](https://doi.org/10.5032/jae.2007.04032)
- Eichelberger, R. T. (1989). *Disciplined inquiry: Understanding and doing educational research*. New York, NY: Longman.
- Fuchs, D., Fuchs, L. S., Mathes, P. G., & Simmons, D. C. (1997). Peer-assisted learning strategies: Making classrooms more responsive to diversity. *American Educational Research Journal, 34*, 174–206.
- Guba, E. G., & Lincoln, Y. S. (1989). *Fourth generation evaluation*. Newbury Park, CA: Sage.
- Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage Publications, Inc.
- Lincoln, Y. S., & Guba, E. G. (2000). Paradigmatic controversies, contradictions, and emerging confluences. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed., pp. 163–188). Thousand Oaks, CA: Sage
- Mertens, D. M. (2005). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative and mixed methods* (2nd ed.). Thousand Oaks, CA: Sage.
- Miller, J. E., Groccia, J. E., & Miller, M. S. (2001). *Student-assisted teaching: A guide to faculty-student teamwork*. Bolton, MA: Anker Publishing Company, Inc
- O'Donnell, A. M., & O'Kelly, J.O. (1994). Learning for peers: Beyond the rhetoric of positive results. *Educational Psychology Review, 6*(4), 321–349.
- Palincsar, A. S. (1998). Social constructivist perspectives on teaching and learning. *Annual Review of Psychology, 49*, 345–375.
- Patton, M. Q. (1990). *Qualitative Evaluation and Research Methods* (2nd ed.). Newbury Park, CA: Sage Publications, Inc.
- Piaget, J. (1965). *The moral judgment of the child*. New York, NY: Free Press.
- Piaget, J. (1985). *Equilibration of cognitive structures*. Chicago, IL: University of Chicago Press.
- The Boyer Commission on Educating Undergraduates in a Research University. (1998). *Reinventing undergraduate education: A blueprint for American research universities*. Retrieved From <http://naples.cc.sunysb.edu/Pres/boyer.nsf/>

- Topping, K. (1998). *The peer tutoring handbook: Promoting co-operative learning*. Cambridge, MA: Brookline Press.
- Topping, K. J. (2005). Trends in peer learning. *Educational Psychology*, 25(6), 631–645. doi: [10.1080/01443410500345172](https://doi.org/10.1080/01443410500345172)
- Topping, K. J., & Ehly, S. (Eds.). (1998). *Peer-assisted learning*. Mahwah, NJ: Lawrence Erlbaum.
- Tudge, J. R.H., & Rogoff, B. (1989). Peer influences on cognitive development: Piagetian and Vygotskian perspectives. In Bornstein, M. & Bruner, J. (Eds.), *Interaction in Human Development* (pp. 17–40). Hillsdale, NJ: Lawrence Erlbaum Associates Inc.
- Vygotsky, L. S. (1978). *Mind in society*. Cambridge, MA: Harvard University Press.
- Wagner, L. (1982). *Peer teaching: Historical perspectives*. Westport, CT: Greenwood.
- Woolfolk-Hoy, A., & Tschannen-Moran, M. (1999). Implications of Cognitive Approaches to Peer Learning for Teacher Education. In A. M. O'Donnell, & A. King, (Eds.), *Cognitive Perspectives on Peer Learning* (pp. 257–284). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.
- Zophy, J. W. (1982). On learner-centered teaching. *The History Teacher*, 15(2), 185–196.

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