

OC12038

Running Head: TEACHING RESEARCH TO MSW STUDENTS

Teaching Research to MSW Students: Effectiveness of the Team-Based Learning Pedagogy

Caroline Macke & Karen Tapp

Northern Kentucky University

Accepted for Publication by Journal of Teaching in Social Work

Abstract

Social work students have often been labeled as research reluctant. Consequently, it is important to identify effective teaching strategies. One such innovative strategy is team-based learning. The effectiveness of team-based learning has not yet been evaluated within a social work research class. As a result, the current study compared the effectiveness of team-based learning with that of other pedagogies. Findings suggest that team-based learning wasn't more effective than alternate pedagogies in increasing MSW students' intent to incorporate research into practice. Notably, the team-based learning approach was more effective in increasing research self-efficacy. Implications for future research and practice are discussed.

Key Words: Social work, research courses, pedagogy, teaching strategy, team-based learning

## Teaching Research to MSW Students: Effectiveness of the Team-Based Learning Pedagogy

Research is deeply rooted in the social work profession, with pioneers such as Mary Richmond, Jane Addams, and Edith Abbott underscoring the importance of empirical studies (Dunlap, 1993). The Council on Social Work Education has continued to highlight the importance of research by identifying it as a key competency. While it is clear that research plays a central role in the social work profession, it is less clear how to best teach this competency to social work students. Social work programs that are committed to research are struggling to identify the most effective pedagogical methods for teaching research. This search for effective pedagogies is particularly important in light of outcome studies that have identified practitioner and student attitudes toward research as being overwhelmingly negative (Dunlap, 1993; Epstein, 1987; Green, Bretzin, Leininger, & Stauffer, 2001). As a result of these negative attitudes, social work students have been labeled “research reluctant” (Epstein, 1987). Such a label is particularly disconcerting since it suggests that social workers may be disinclined to conduct research studies within their daily practice setting.

In light of these negative implications, Secret, Ford, and Rompf (2003) re-examined student attitudes toward research and argue that social work students may not be deserving of the “research reluctant” label. Among their sample of 285 undergraduate social work students, Secret et al. identified considerable variation in students’ attitudes toward research. Specifically, they found that the “research reluctant” stereotype was a far too simplistic portrayal. Rather, the study identified predictors for negative attitudes. Women and those with less statistical knowledge exhibited more negative attitudes toward research courses, while older students and those who felt more empowered exhibited more positive attitudes toward research courses. In

brief, Secret et al. conclude that the research reluctant label cannot and should not be applied to social work students across the board.

The “research reluctant” stamp has, however, been deeply ingrained in social work literature and removing it will not be an easy task. As a result, research courses often may be designed based on the simplistic belief that all social work students have “negative” attitudes toward research. This, in turn, may have strong negative ramifications. For instance, an instructor’s belief that his/her students are research reluctant may result in a compromised classroom atmosphere, lowered expectations, and a self-fulfilling prophecy of negativity surrounding research (Secret et al., 2003). In light of these beliefs, as well as the current outcome-driven atmosphere, it is imperative to find effective strategies for teaching research to social work students.

A variety of pedagogies for teaching research have been discussed in the social work literature. The most commonly examined teaching approaches include the service learning approach (Harder, 2010; Kapp, 2006) and community-based research approach (Anderson, 2002; Jackson & Sedehi, 1998; Knee, 2002; Olsen, 1990; Wainstock, 1994; Yegeedis, 1980). Both of these approaches involve the application of research knowledge to the research needs of community-based agencies and are intended to illustrate to students the immediate connection between research and practice. Berger (2002) attempted to make this connection in a slightly different way, by integrating research content into a practice course. Aside from teaching approaches that connect research and practice, a number of studies have also examined the use of cooperative learning (Garrett, 1998; Swanberg, Platt, & Karolich, 2003). Cooperative learning involves the insertion of structured “small-group activities into preexisting course materials” (Michaelsen, Bauman Knight, & Fink, 2004, pp. 8). The collaboration of students within small

groups has been found to promote higher order learning (Johnson, Johnson, & Smith, 1991). Cooperative learning is considered to be a small-group teaching *tool* that can be integrated into virtually any *pedagogy*, rather than being a pedagogy in and of itself. Problem-based learning, on the other hand, is a small-group pedagogy that requires a shift in the structure of the course and the role of the instructor. With problem-based learning, the instructor assumes the role of facilitator, while the students themselves assume the responsibility for their learning. In this pedagogy, group work is centered on case studies (Albanese & Mitchell, 1993; Hmelo-Silver, 2004; Norman & Schmidt, 1992). Problem-based learning promotes problem-solving skills, critical thinking, and self-directed learning. While this pedagogy has been used primarily to teach clinical/practice skills (i.e. in the health professions), it has also been used within social work education to teach research to MSW students (Gardner, Tuchman, & Hawkins, 2010).

One teaching approach that, to the authors' knowledge, has not yet been evaluated for use in social work research classes is team-based learning. With this in mind, the current evaluation study will compare the effectiveness of the team-based learning pedagogy as compared to more traditional pedagogies (lecture and hybrid approach) in teaching an introductory research course.

*Team-based learning: What Is It & What Are Its Benefits?*

Team-based learning is similar to problem based learning since both are highly structured pedagogical approaches that promote higher level cognitive skills. Both approaches center primarily on small-group work, while also maintaining a strong aspect of self-directed learning (Michaelsen et al., 2004). There are, however, significant differences between team-based learning and problem based learning. In problem based learning, students are presented with a case study that will drive their group work. No content is conveyed prior to the presentation of the case study (Albanese & Mitchell, 1993; Hmelo-Silver, 2004; Norman & Schmidt, 1992).

Conversely, with team-based learning, students must first study the content independently before receiving a group project (Michaelsen, 1994). The group projects used in team-based learning are not case studies; rather, they consist of questions that require the application of knowledge. This suggests that in team-based learning the content precedes the group work, while in problem based learning the content flows from the group work.

The specific characteristics of team-based learning are as follows: (1) small-group work; (2) a grading system based on individual work, group work, and peer evaluations; (3) a division of course content into 5 or 6 main units; (4) a focus of class time on group projects, rather than lecture; and, (5) an emphasis on applying knowledge, rather than regurgitating it (Michaelsen, 1994). Michaelsen proposes a 6-step instructional sequence, which should be repeated for each of the main units over the course of the semester (Michaelsen, 1994; Michaelsen et al., 2004). The first step in this sequence requires students to engage in individual study. Specifically, students must read the assigned materials. Subsequently, in step two, students take an individual, multiple choice quiz that covers the assigned readings. In step three, students must take the exact same quiz, but as a group. Once students have completed the group quiz, the instructor should provide the correct answers. Immediately following the grading of the group quiz, students are given the opportunity to prepare a written appeal in the instance that they disagree with one or more of the questions on the quiz (step 4). These appeals are then given to the instructor for review. During step 5, the instructor provides input based on students' questions or based on the complexity of certain content areas. This is the only step where the instructor takes on a more traditional "teaching/lecturing" role. The final step involves the application of the material. During this sixth step, students will engage in application-oriented group projects. It is important

to note that only 20% of class time should be spent on steps 1-5, while 80% should be spent on step 6 (Michaelsen, 1994; Michaelsen, 2004).

Studies have identified a wide variety of benefits associated with the team-based learning pedagogy (Garrett, 1998; Michaelsen, 1994; Michaelsen, Watson, & Black, 1989; Michaelsen et al., 2004; Watson, Michaelsen, & Sharp, 1991). First, research suggests that team-based learning is an effective way to transfer knowledge about basic and complex terminology. For instance, in team-based learning studies, the *lowest team* score typically exceeded the *highest individual* score in the majority of classes (Michaelsen et al., 1989). This finding reflects the principle of synergy, where the product of the overall group will outperform the sum of the products produced by each of the individual group members. This benefit to team-based learning should be shared with students in a team-based learning class. For students, this compelling performance data clarifies the value of engaging in complex problem solving with a team. Second, aside from promoting knowledge acquisition, the team-based learning approach allows for a quantitative and qualitative increase in knowledge application (Michaelsen et al., 2002). Specifically, a quantitative increase in application learning occurs since more class time is spent on application exercises. Qualitatively, the team is able to take on more complex and challenging problems due to more intellectual resources within the team (as compared to within an individual), more time together resulting in higher performance team work, and accountability and rewards that reinforce the investment of time and superior team effort (Michaelsen et al., 2004). Third, team-based learning allows instructors to cover the same amount of content, while also promoting higher-order learning. Specifically, team-based learning promotes critical thinking, problem solving, analytical skills, interpersonal and leadership skills, and conflict resolution skills (Michaelsen, Cragin, & Watson, 1981; Watson et al., 1991). Additionally, the

innovative aspects of team-based learning stave off the sense of burnout often experienced by instructors who are teaching introductory courses. Rather than having to focus on covering content, instructors using the team-based learning approach can focus on developing applied exercises that will infuse a sense of excitement and motivation within their students. This creativity can result in a sense of renewed enthusiasm among instructors (Michaelsen et al., 1981; Watson et al., 1991).

Aside from the empirical evidence in support of team-based learning, support can also be found within theories of adult learning. While team-based learning's theoretical base remains largely unexplored in the literature, learning theories have been associated with this pedagogy (Fink, 2003). Adult learning research informs educators that when adults learn something independently (in contrast to being taught), they are highly self-directing (Tough, 1978, 1979). Consistent with this view is active learning, which refers to a variety of instruction models that focus the responsibility of learning on the learner rather than the instructor (Bonwell & Eison 1991). Fink (2003) described team-based learning as a construct of active learning, and used Bonwell and Eison's definition of active learning, which states that active learning is "anything that involves students doing things and thinking about the things they are doing" (1991, p.2). Team-based learning undoubtedly falls under the purview of active learning, as evidenced by the minimal amount of time spent on lecturing. Rather, students are required to acquire the knowledge independently through readings and then apply the newly acquired knowledge during group projects. As noted by Michaelsen et al. (2004), the group interaction/dynamic, both within groups and between groups, provides opportunities to motivate active learning.

Active learning theory thus supports the use of team-based learning with adults. One may, however, question whether this pedagogy is effective in teaching introductory level

content, as compared to advanced content. This question is particularly poignant in light of the finding that problem-based learning is more effective when used with advanced students as compared to beginning students (Kirschner, Sweller & Clark, 2006; Mayer, 2004). In fact, research suggests that problem-based learning is not an effective pedagogy to teach schema/basic concepts (Kirschner et al., 2006; Mayer, 2004). Michaelsen (1994) posits that team based learning is effective in teaching both advanced and introductory courses due to the sequence in which learning occurs. Specifically, as was noted previously, in team based learning the learning of the content precedes the group work. This stands in contrast to problem-based learning, where no content is presented prior to the group work. This suggests that team based learning requires students to be familiar with the schema/fundamental concepts before tackling the group project. This sequence of learning better accommodates the needs of beginning level students, and is consequently predicted to produce better outcomes in an introductory MSW research class (Michaelson, 1994).

Team-based learning has been used extensively and successfully in a variety of disciplines, including business (Michaelsen, Peterson, & Sweet, 2009), science (Dinan, 2004; Herreid, 2004), medicine/health professions (Haidet, O'Malley, & Richards, 2002; Michaelsen, Parmelee, McMahon, & Levine, 2008; Searle, Haidet, Kelly, Schneider, Seidel, & Richards, 2003; Seidel, & Richards, 2001), and organizational psychology (Haberyan, 2007). A review of the literature, however, indicates that, to the authors' knowledge, no studies have been published regarding the use of team-based learning in social work education. Furthermore, the effectiveness of the team-based learning approach has not yet been evaluated within the context of an MSW Introductory Research Course. As a result, the effectiveness of this approach in teaching social work students research is unknown. For this reason, the current exploratory

evaluation study examined the effectiveness of team-based learning in teaching an introductory research course as compared to the effectiveness of alternate pedagogies. Specifically, the study examined whether team-based learning was more effective than the traditional lecture and hybrid approaches (a combination of face-to-face lecture and internet-based learning) in improving students' intent to incorporate research into practice and students' research self-efficacy. The authors hypothesized that the team-based learning approach would result in a greater increase in students' intent to incorporate research into practice, as well as a greater increase in research self-efficacy as compared to the alternate pedagogies.

### Methodology

This IRB approved study involved the comparison of two groups of MSW students, each of which was subjected to a different teaching approach. One group was taught using the team-based learning approach, while the other group received an alternate pedagogy (either traditional lecture or hybrid teaching approach).

### *Research Design & Data Collection Procedures*

The study used a pretest-posttest design. A self-administered survey was distributed during the first and last class sessions of the semester. Surveys were distributed by the instructors of each of the sections of the research classes. Instructors left the classrooms immediately after distributing the surveys so students would not feel coerced to participate in the study. If students chose to participate, then they were requested to complete the survey, seal it in the provided envelope and drop the envelope in the locked drop box located at the front of the classroom. Participation was completely voluntary and anonymous. Rather than asking for identifying information, students were asked to create an individual code that allowed the researchers to

match up pre and posttests. All information regarding protection of human subjects was explained in the informed consent sheet, which accompanied the survey.

It is important to note that a total of three instructors were involved in this study, but that only one instructor used the team-based learning pedagogy. This suggests that all students in the team learning group were taught by the same instructor. In addition, the team learning instructor is one of the authors of this article. It is then conceivable that the researcher/instructor's commitment to the team-based learning pedagogy, as evidenced by the hypotheses, may have resulted in researcher bias. In a concerted effort to reduce the potential for researcher bias, the instructor strictly adhered to Michaelsen's six-step instructional sequence. In addition, the data collected from students was quantitative in nature, thereby also reducing the risk for researcher bias.

### *Participants*

All participants in this study were enrolled in one of four sections of a Master's level Social Work "introductory of research course" offered at a Midwestern university. In total, 46 students completed both the pre and posttest. Of these 46 students, 23 were taught using the team-based learning approach, while the remaining 18 and 5 were taught using the hybrid and lecture approach respectively. Students receiving traditional lecture and hybrid instruction were grouped together due to the small sample size for each teaching style. This suggests that both the team-based learning and the non-team-based learning groups consisted of 23 students.

Participants' mean age was 30, with a range from 21 to 52. The majority of participants were female (80% female; 20% male). Students reported completing an average of 1.16 college level research courses in the past, with a range from 0 to 3 research courses. Finally, participants reported an average of 2.59 years of practice experience, with a range from 0 to 16.

Since students were not randomly assigned to the team-based learning and non-team-based learning groups, it was important to determine whether there were any significant differences between these two groups. For this reason, crosstabulations with chi-square and independent samples t-tests were conducted to examine group differences. No significant group differences emerged.

### *Measures*

The self-administered survey used for this study measured two different constructs and took approximately 10 minutes to complete. The two scales included in this survey are discussed below.

*Plans to do empirically based practice.* The survey assessed students' intent to incorporate research into their Social Work practice. In order to measure students' intent to engage in empirically based practice, Siegel's 6-item "Plans to do empirically based practice" scale (Olsen, 1990; Siegel, 1983) was included in the survey. Two examples of items included in this scale are: "I plan to use research findings in my practice" and "I plan to do empirical research to evaluate the outcomes of my interventions". The 6 items in this scale were measured on a 5-point Likert scale ranging from never to always. A composite variable was created through simple mean calculation in order to obtain an overall view of the extent to which students plan to incorporate research into their practice. The internal consistency reliability of this scale is good with a Cronbach's alpha ranging from .87 to .90 (Olson, 1990). When calculating the internal consistency reliability using the current dataset, the Cronbach's alpha ranged from .90 for the pretest data to .98 for the posttest data.

*Research Self-Efficacy.* Research self-efficacy was measured using the Research Self-Efficacy Scale (RSE) developed by Holden, Barker, Meenaghan, and Rosenberg (1999). This

instrument consists of 9 items, all of which are measured on a 100-point Likert scale, with 0 indicating “cannot do at all” and 100 indicating “certainly can do”. Two examples of items included in the RSE are: “Please rate your level of confidence in your ability to do effective electronic database searching of scholarly literature” and “Please rate your level of confidence in your ability to formulate a clear research question or testable hypothesis”. A composite variable was created through simple mean calculation. This composite variable was created in an effort to assess students’ overall self-efficacy regarding research skills. The RSE has excellent internal consistency reliability, with a Cronbach’s alpha of .94 (Holden et al., 1999). When calculating the internal consistency reliability using the current dataset, the Cronbach’s alpha ranged from .96 for the pretest data to 1.00 for the posttest data.

#### *Data Analysis*

Data was compiled and analyzed using SPSS computer software. In an effort to examine group differences between team-based learning and non-team-based learning groups, change scores were calculated for each of the constructs (plans to do empirically based practice and self-efficacy). These change scores were created by deducting the pretest score from the post test score. The change scores were then compared between the team-based learning and non-team-based learning groups using independent samples t-test analyses. Due to the small sample size and exploratory nature of this study, findings significant at the .05 level were reported.

#### Findings

##### *Plans to Engage in Empirically Based Practice*

Independent samples t-test revealed that team-based learning ( $m=.1812$ ) and non-team-based learning students ( $m=-.0238$ ) did not differ significantly in terms of the reported changes in their plans to do empirically based practice,  $t(42)=.819$ ,  $p=.417$ .

### *Research Self-Efficacy*

The independent samples t-test indicated that there was a significant difference between team-based learning and non-team-based learning students in terms of their changes in research self-efficacy from pre to posttest. Specifically, team-based learning students had an average change score of 30, while the non-team-based learning students had an average change score of 2.40,  $t(42)=3.763$ ,  $p=.001$ . This suggests that team-based learning students reported a significantly larger improvement in their research self-efficacy as compared to the non-team-based learning students.

## Discussion

### *Interpretation of Findings*

The primary purpose of this study was to evaluate the effectiveness of the team-based learning approach. Findings suggest that, when compared to a non-team-based learning approach, the team-based learning approach was not more effective in changing students' intent to engage in empirically based practice. The lack of a significant difference may be attributed to the notion that one's intent to engage in empirically based practice is fairly resistant to change. The ability to alter practice-related intents is likely not solely tied to the teaching approach, but may rather also be dependent on the length of exposure to research. A one-semester course may not suffice in bringing about change in this variable. It may even require utilization in practice to deepen understanding of the importance and impact of research in order to strengthen one's intent to engage in empirically based practice.

The team-based learning approach was more effective than the non-team-based learning approaches at improving research self-efficacy among this sample. Significantly greater improvements in self-efficacy scores were found for the team-based learning group as compared

to the non-team-based learning group. Findings from this study suggest that the differences in self-efficacy improvement can, at least in part, be attributed to the teaching approach. It is important to note that social work instructors have rarely evaluated their students based on self-efficacy (Holden et al., 1999; Montcalm, 1999; Unrau & Grinnell, 2005). Rooted in Bandura's Social Learning Theory, self-efficacy is a construct that assesses an individual's self-perceived competence in completing a certain task. Bandura's theory posits that individuals are more likely to engage in a specific activity if they believe themselves to be competent and if they believe that their activity will result in real-life implications (i.e. for practice) (Montcalm, 1999). Measuring self-efficacy among research students may then be very useful, as it may provide an indication as to whether or not social work students are likely to implement their research skills outside of the classroom.

#### *Implications for Practice & Directions for Future Research*

To authors' knowledge, this is the first study to evaluate the team-based learning approach within a social work research course. Findings from this study suggest that there may be a distinct benefit to utilizing this pedagogy in teaching introductory research courses within the social work field. In particular, this study found that team-based learning is more effective in enhancing students' research self-efficacy as compared to other pedagogies. Conversely, this study did not prove team learning to be more effective in increasing students' intent to incorporate research into practice. While no *direct* relationship was found between team-based learning and "intent to incorporate research into practice", one may infer an *indirect* link based on Bandura's theory. Specifically, as noted by Bandura, individuals are more likely to engage in activities if they view themselves as competent. As such, a sustained level of high research self-efficacy, due to team-based learning, may ultimately result in a greater likelihood that the student

will engage in research once they have entered the workforce (Montcalm, 1999). In addition, the authors hypothesize that a student's intent to incorporate research into practice may be more resistant to change than his/her research self-efficacy. In order to detect a statistical difference in students' intent to incorporate research into practice the exposure to a team-based learning research course may need to be longer than one semester. A longitudinal study should be conducted to examine the long-term impact of a team-based learning research course on self-efficacy, and subsequent research practice in the field.

The promising results from this exploratory study suggest that further research in this area is warranted. Future evaluative studies should address the limitations of the current study. Specifically, the current study used a small sample, which was collected from one Midwestern university. As a result, the findings from the current study cannot be generalized beyond the study sample. Future studies should use larger, more geographically diverse samples. In addition, all of the students receiving the team-based learning pedagogy in this study were taught by the same instructor, while the hybrid and lecture classes each had a different instructor. Future studies should make sure that the team-based learning classes are taught by more than one instructor. This will reduce the risk for researcher bias and will ensure that the study findings are not due to the instructors, but rather are due to the differences in the teaching pedagogies. Finally, the current study did not measure students' content mastery. Future studies should consider adding this variable in an effort to examine if indeed team-based learning is more effective than other pedagogies in promoting content comprehension and retention.

If future larger scale studies confirm the current study's findings, then this may suggest that both new and seasoned social work instructors should be educated on the team-based

OC12038

learning pedagogy and should be encouraged to use team-based learning when teaching introductory research methods courses.

References

- Albanese, M.A., & Mitchell, S. (1993). Problem-based learning: A review of literature on its outcomes and implementation issues. *Academic Medicine*, 68(1), 52-81.
- Anderson, S. G. (2002). Engaging students in community-based research: A model for teaching social work research. *Journal of Community Practice*, 10, 71-87.
- Berger, R. (2002). Teaching research in practice courses. *Social Work Education*, 21(3), 347-358.
- Bonwell, C., & Eison, J. (1991). *Active Learning: Creating Excitement in the Classroom*. AEHE-ERIC Higher Education Report No. 1 (p.1). Washington, D.C.: Jossey-Bass.
- Dinan, F.J. (2004). An alternative to lecturing in the sciences. In L. K. Michaelsen, A. Bauman Knight, & L.D. Fink (Eds.), *Team-based learning: A transformative use of small groups in college teaching* (pp.97-104). Sterling, VA: Stylus Publishing LLC.
- Dunlap, K. M. (1993). A history of research in social work education: 1915-1991. *Journal of Social Work Education*, 29(3), 293-301.
- Epstein, I. (1987). Pedagogy of the perturbed: Teaching research to the reluctant. *Journal of Teaching in Social Work*, 1(1), 71-89.
- Fink, L.D. (2003). *Creating Significant Learning Experiences* (pp.102-154). San Francisco: Jossey-Bass.
- Gardner, D.S., Tuchman, E., & Hawkins, R. (2010). A cross-curricular, problem-based project to promote understanding of poverty in urban communities. *Journal of Social Work Education*, 46(1), 147-155.
- Garrett, K. J. (1998). Cooperative learning in social work research courses: Helping students help one another. *Journal of Social Work Education*, 34(2), 237-246.

- Green, R. G., Bretzin, A., Leininger, C., & Stauffer, R. (2001). Research learning attributes of graduate students in social work, psychology, and business. *Journal of Social Work Education, 37*, 333-341.
- Haberyan, A. (2007). Team-based learning in an Industrial/Organizational Psychology course. *North American Journal of Psychology, March*, Retrieved from:  
[http://findarticles.com/p/articles/mi\\_6894/is\\_1\\_9/ai\\_n28434149/pg\\_5/?tag=content;coll](http://findarticles.com/p/articles/mi_6894/is_1_9/ai_n28434149/pg_5/?tag=content;coll)
- Haidet, P. O., O'Malley, K. J. & Richards, B. (2002). An initial experience with "team learning" in medical education. *Academic Medicine, 77*, 40-43.
- Harder, J. (2010). Overcoming MSW students' reluctance to engage in research. *Journal of Teaching in Social Work, 30*(2), 195-209.
- Herreid, C.F. (2004). Using case studies in science – And still covering the content. In L. K. Michaelsen, A. Bauman Knight, & L.D. Fink (Eds.), *Team-based learning: A transformative use of small groups in college teaching* (pp.105-114). Sterling, VA: Stylus Publishing LLC.
- Hmelo-Silver, C.E. (2004). Problem-based learning: What and how do students learn? *Educational Psychology Review, 16*(3), 235-266.
- Holden, G., Barker, K., Meenaghan, T., & Rosenberg, G. (1999). Research self-efficacy: A new possibility for educational outcomes assessment. *Journal of Social Work Education, 35*(3), 463-476.
- Jackson, A. P., & Sedehi, J. (1998). Homevisiting: Teaching direct practice skills through a research project. *Journal of Social Work Education, 34*(2), 283-290.
- Johnson, D., Johnson, R., & Smith, K. (1991). *Cooperative learning: Increasing college faculty instructional productivity*. Washington, DC: Clearinghouse on Higher Education.

- Kapp, S. A. (2006). Bringing the agency to the classroom: Using service-learning to teach research to BSW students. *The Journal of Baccalaureate Social Work, 12*, 56-70.
- Kirschner, P.A., Sweller, J., & Clark, R.E. (2006). Why minimal guidance during instruction does not work: an analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. *Educational Psychologist, 41* (2), 75–86.
- Knee, R.T. (2002). Can service learning enhance student understanding of social work research? *Journal of Teaching in Social Work, 22*(1/2), 213-225.
- Mayer, R. (2004). Should there be a three-strikes rule against pure discovery learning? The case for guided methods of instruction. *American Psychologist, 59*(1), 14–19.
- Michaelsen, L. K. (1994). Team-based learning: Making a case for the small-group option. In K.W. Prichard & R.M. Sawyer (Eds.), *Handbook of college teaching* (pp.139-153). Westport, CT: Greenwood Press.
- Michaelsen, L. K., Bauman Knight, A., & Fink, L. D. (2004). *Team-based learning: A transformative use of small groups in college teaching* (pp.24-26, 108). Sterling, VA: Stylus Publishing LLC.
- Michaelsen, L. K., Cragin, J. P., & Watson, W. E. (1981). Grading and anxiety: A strategy for coping. *Exchange: The Organizational Behavior Teaching Journal, 6*(1), 32-36.
- Michaelsen, L.K., Parmelee, D.X., McMahon, K.K., & Levine, R.E. (2008). *Team-based learning for health professions education: A guide to using small groups for improving learning*. Sterling, VA: Stylus Publishing LLC.

- Michaelsen, L. Peterson, T., & Sweet, M. (2009). Building learning teams: The key to harnessing the power of small groups in management education. In S. Armstrong & C. Fukami (Eds.), *Handbook of Managerial Learning, Education, and Development* (pp. 325-343). Thousand Oaks, CA: Sage Publications.
- Michaelsen, L.K., Watson, W.E., & Black, R.H. (1989). A realistic test of individual versus group consensus decision making. *Journal of Applied Psychology, 74*(5), 834-839.
- Montcalm, D.M. (1999). Applying Bandura's theory of self-efficacy to the teaching of research. *Journal of Teaching in Social Work, 19*(1/2), 93-107.
- Norman, G.R., & Schmidt, H.G. (1992). The psychological basis of problem-based learning: A review of the evidence. *Academic Medicine, 67*(9), 557-565.
- Olsen, L. (1990). Integrating a practice orientation into the research curriculum: The effect on knowledge and attitudes. *Journal of Social Work Education, 26*(2), 155-161.
- Searle, N.S., Haidet, P., Kelly, P.A., Schneider, V., Seidel, C.L., & Richards, B.F. (2003). Team learning in medical education: Initial experiences at 10 institutions. *Academic Medicine, 78*(10), S55-S58.
- Secret, M., Ford, J., & Rompf, E. L. (2003). Undergraduate research courses: A closer look reveals complex social work student attitudes. *Journal of Social Work Education, 39*(3), 411-422.
- Seidel, C. L., & Richards, B. (2001). Application of team learning in a medical physiology course. *Academic Medicine, 76*, 533-534.

- Siegel, D. H. (1983). Can research and practice be integrated in social work education? *Journal of Education for Social Work, 19*(3), 12-19. Swanberg, J., Platt, P., & Karolich, R. (2003). Cooperative learning in social work education: An alternative approach to teaching research. *Arête, 2*, 36-49.
- Tough, A. (1978). Major learning efforts: Recent research and future directions. *Adult Education., 28*, 250-263.
- Tough, A. (1979). *The adult's learning projects: A fresh approach to theory and practice in adult learning (2nd ed.)* (pp.56-65). Toronto, CA: Ontario Institute for Studies in Education.
- Unrau, Y. A., & Grinnell, R. M. (2005). The impact of social work research courses on research self-efficacy for social work students. *Social Work Education, 24*(6), 639-651.
- Wainstock, S. L. (1994). Swimming against the current: Teaching research methodology to reluctant social work students. *Journal of Teaching in Social Work, 9*(1/2), 3-16.
- Watson, W. E., Michaelsen, L. K., & Sharp, W. (1991). Member competence, group interaction, and group decision-making: A longitudinal study. *Journal of Applied Psychology, 76*, 801-809.
- Yegidis, B. (1980). An effective method for facilitating student learning of research methods. *Arête, 6*(2), 43-49.