EVALUATING PEER LEARNING IN EDUCATIONAL INNOVATION: THE ROLE OF SOCIAL COHESION IN ENHANCING ACADEMIC PERFORMANCE

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Abstract: This study constructed a core conceptual framework using peer learning model, social cohesion, problem solving efficiency, and academic performance as variables by introducing the following demographic gender, age, grade level, and GPA variables. Attempting to analyze the differences in the perceived means of the respondents' demographic variable groupings in each of the variables of peer learning model, social cohesion, problem solving efficiency, and academic performance and the influence of the independent variables on the dependent variables, the study formulated the research hypotheses: Hypothesis 1 (H1): Peer learning has a positive impact on the academic performance of the students in the educational setting. Hypothesis 2 (H2): Problem solving efficiency mediates the relationship between peer learning and academic performance. Hypothesis 3 (H3): Social cohesion within peer learning groups has a positive effect on academic performance. And using the students of tourism management in Shanxi Business School as a case study, in the overall study, the sample size was calculated as 10,342 using simple random sampling method, 440 questionnaires were distributed in this study, and 425 questionnaires were retrieved using the simple random sampling method, and the recovery rate was 96.6%.

This study found that peer learning model has a significant positive effect on academic performance, social cohesion has a significant positive effect on academic performance, the mediator variable (problem solving efficiency) plays the role of a full mediator between the independent variable (peer learning model) and the dependent variable (academic performance) and the mediator variable (problem solving efficiency) partially mediated the relationship between the independent variable (social cohesion) and the dependent variable (academic performance). This study provides a reference point for subsequent research by scholars, explores future directions for student teaching, and provides outlook and suggestions for future related research.

Keywords: Peer Learning Model, Social Cohesion, Problem Solving Efficiency, Academic Performance

Introduction

In recent decades, the field of education has undergone a remarkable transformation from traditional teaching and learning methods to more innovative approaches. The impetus for this change stems from a deeper understanding of the limitations of traditional teaching models, which often fail to meet the diverse needs of learners and adequately prepare them for success in a complex world (Topping, 2017). As a result, more emphasis has been placed on fostering collaborative learning environments and promoting active student participation, and peer learning has thus become one of the instructional strategies that have received much attention.

Peer learning is built on the theoretical foundation of social constructivism, which allows students to play the dual role of learner and teacher in the learning process, actively participating in reciprocal teaching, collaborative problem solving, and providing feedback to peers (Strobel & van Barneveld, 2009). This type of learning not only deepens students' understanding of subject matter, but also develops skills such as communication and critical thinking (Johnson & Johnson, 2017).

Research has shown that peer learning has been remarkably effective in a variety of educational settings by improving students' academic performance, promoting retention of course material, and modeling positive attitudes toward learning (Topping, 2017). In addition, peer learning enhances student engagement, social skills, and self-confidence.

Social cohesion is important in maintaining social harmony by fostering a sense of purpose and cooperation, which strengthens social cohesion and national strength (Caldwell & Jorgensen, 2017). In the field of education, high levels of social cohesion help to create a supportive learning environment where students feel connected to their peers, are motivated, and actively participate, which can positively impact academic performance (Jiang & Yu, 2019).

Conversely, decreased social cohesion may negatively impact student well-being and academic achievement, leading to lack of engagement and poor academic performance (Hoskins, Fredrickson, & Lee, 2020).

Although the benefits of peer learning and social cohesion have been widely recognized, relatively little research has been conducted on their interactions and combined effects on academic performance. The present study seeks to fill this research gap by focusing on the mediating role of problem solving efficiency.

Problem solving efficiency refers to the ability to effectively identify, analyze, and solve complex problems, which is critical in both academic and professional fields. This study aims to elucidate how peer learning and social cohesion affect academic performance by directly or indirectly influencing problem solving efficiency.

In summary, this study contributes to the field of educational innovation by exploring the interrelationships between peer learning, social cohesion, and academic achievement. By revealing

these dynamic relationships, this study aims to provide theoretical support for effective teaching practices in different educational contexts.

Research Problem Statement:

Factors such as peer learning and social cohesion are gradually becoming topics of great interest in the field of education. Peer learning, as a teaching strategy that emphasizes mutual cooperation and interaction among students, is believed to stimulate students' interest in learning and improve their academic performance. Social cohesion, on the other hand, is an important factor in maintaining social cohesion, which is significant in creating a positive learning atmosphere and promoting student development. Despite the widely recognized importance of these factors, there are still many unanswered questions about their relationships and their combined effects on academic achievement. In particular, there is a dearth of existing research in understanding how these factors interact with each other and what impact they have on students' academic achievement.

The purpose of this study was to explore the complex relationships between peer learning, social cohesion, and problem solving efficiency, with a focus on the mediating role of problem solving efficiency in this context. In order to better understand these relationships, this study asks the following questions.

Research Question:

How does peer learning affect students' problem solving efficiency and what are the direct and indirect effects on academic achievement in the process?

How does social cohesion interact with peer learning and what is its combined effect on students' problem solving efficiency and academic achievement?

What role does problem solving efficiency play in mediating the relationship between peer learning and social cohesion and academic achievement?

By examining these questions in depth, we can gain a more comprehensive understanding of the mechanisms by which peer learning, social cohesion, and problem solving efficiency have a combined effect on students' academic achievement, and provide more specific and practical guidance for educational practice.

Research Objective (s)

Objective 1: Evaluate the Impact of Peer Learning on Academic Performance.

The primary objective of this study is to rigorously assess the impact of peer learning on academic performance across various educational contexts. By comparing the academic performance of students engaged in peer learning activities with those in traditional instructional settings, this objective aims to determine the extent to which peer learning contributes to improved academic outcomes. This evaluation will provide valuable insights into the effectiveness of peer learning as a

pedagogical approach and its potential to enhance student achievement.

Objective 2: Examine the Mediating Role of Problem-Solving Efficiency.

A key objective of this study is to investigate the mediating role of problem-solving efficiency in the relationship between peer learning and academic performance. By examining how peer learning experiences influence students' problem-solving skills and strategies, this objective seeks to elucidate the mechanisms through which peer learning impacts academic achievement. Understanding the mediating role of problem-solving efficiency will provide valuable insights into the cognitive processes underlying the effectiveness of peer learning and its potential to foster deeper learning outcomes.

Objective 3: Explore the Influence of Social Cohesion on Peer Learning and Academic Performance.

Another important objective of this study is to explore the influence of social cohesion on peer learning processes and its subsequent effects on academic performance. By examining the extent to which social cohesion within peer learning groups affects students' engagement, motivation, and collaboration, this objective seeks to identify the social mechanisms that contribute to enhanced learning outcomes. Understanding the role of social cohesion will provide valuable insights into the socio-emotional factors that shape the effectiveness of peer learning and its impact on academic achievement.

Literature Review

Peer learning is when students actively construct knowledge, solve problems, and provide feedback with their peers (Topping, 2017). Rooted in social constructivism and sociocultural learning theories, peer learning emphasizes the role of social interaction, collaboration, and shared experiences in shaping students' cognitive and affective development (Johnson & Johnson, 2018). According to Vygotsky's theory of the Zone of Proximal Development, peer interactions enable learners to scaffold their understanding through collaborative problem solving and peer instruction (Roscoe & Chi, 2020).

Cases for the application of peer learning to classroom instruction date back to the late 18th century, when it was used in the teaching of college physics. Eric Mazur, in his book Peer Teaching Methodology, describes the process of implementing peer learning in a real classroom, stating that the student should be prepared for the lesson before the class begins, and that he must independently preview what he wants to learn and develop an initial understanding of the knowledge before entering the classroom, in order to engage with his peers in the classroom. Only by doing so, when he enters the classroom, can he interact with his peers in depth and obtain good learning results. Pre-learning is the basic prerequisite for the successful implementation of peer-assisted learning.

The concept of social cohesion draws on a variety of sociological theories to provide a theoretical framework for understanding its dynamics and impact in educational settings. Social capital theory, as developed by Coleman (1988), posits that social cohesion enhances collective action, cooperation, and trust among group members, resulting in positive outcomes such as academic

performance and community resilience. According to social capital theory, social cohesion creates networks of social support, information exchange, and reciprocal relationships that promote students' academic success and well-being (Putnam, 2000).

Academic performance is defined as student success in mastering academic content, demonstrating subject area competence, and achieving learning outcomes set by the educational institution (Finn & Rock, 2017). Theoretical frameworks such as Social Cognitive Theory, Self-Determination Theory, and Expected Value Theory provide insights into the cognitive, motivational, and sociocultural factors that influence academic performance (Bandura, 2012; Deci & Ryan, 2018; Eccles & Wigfield, 2020). According to social cognitive theory, an individual's beliefs about his or her own abilities (self-efficacy), goal-setting processes, and self-regulation strategies play a crucial role in determining academic performance (Bandura, 2012). Self-determination theory emphasizes the importance of intrinsic motivation, autonomy, and competence in promoting academic engagement and achievement (Deci & Ryan, 2018). Expectancy-value theory suggests that students' beliefs about the value of academic tasks and expectations for success influence their academic performance and persistence (Eccles & Wigfield, 2020).

Empirical studies have found a wide variety of factors that influence students' academic performance across educational settings and populations. Meta-analytic studies have consistently found significant correlations between cognitive ability, motivation, and academic performance (Schneider & Preckel, 2017). Longitudinal studies have demonstrated the predictive validity of socioeconomic status and school climate on student academic performance, highlighting the importance of addressing social inequality and promoting a positive learning environment (Hanushek & Woessmann, 2015; Wang & Eccles, 2013).

Social cohesion in the educational environment has a profound effect on students' problem-solving skills and academic success. When students perceive their learning environments as supportive and cohesive, they are more inclined to engage in constructive peer interactions, seek help from their peers, and share resources and expertise (Nawrotzki et al., 2020) High levels of social cohesion contribute to effective communication, trust, and cooperation within peer learning groups, enabling students to work collaboratively to solve complex problems and achieve common goals (Caldwell & Jorgensen, 2017). In addition, social cohesion fosters a sense of collective responsibility and accountability among group members, motivating them to actively contribute to group tasks and uphold group norms (Thompson & Dey, 2019). As a result, students develop not only problem-solving skills, but also key communication skills, teamwork skills, and a sense of ownership of the learning process. Together, these factors increase problem-solving efficiency and contribute to academic performance.

In summary, parental involvement, home learning environment, and access to educational support are important factors that influence children's academic performance. They interact with each

other to improve children's academic performance.

Methodology

With probability-based sampling methods, the sample size can be determined through the population collection process. For example: the sample size suitable for calculation, the sample size used in the study was determined using The Taro Yamane Sample Size Formula (1973) and the sample size was determined using a 95% confidence level and permissible values. The sampling error is 5% or 0.05. The overall sample is 10,342. When n = number of samples used in the study . N = size of the overall population, e = error of random sample is set to 0.05 .

The sample size and formula are given below:

$$n = \frac{N}{1 + Ne^2}$$

$$n = \frac{10342}{1 + 10342 \text{ X } 0.05^2}$$

$$n = 384.76$$

The minimum sample size was calculated to be 384; therefore, the study required approximately 384 participants.

The data of this study were collected online, and it was difficult to collect and sample the data in the field because of the different course schedules of the students in the school, so this study chose the "Questionnaire Star Online Platform" (www.wjx.cn) for the distribution, measurement and collection of the questionnaires. In order to increase the accuracy of the results and the generalizability of the conclusions, this study was conducted on the students majoring in tourism management in Shanxi Business School. A total of 440 questionnaires were distributed and 425 valid questionnaires were returned, and the validity rate of the questionnaires was 96.6%.

Through probability sampling, we can learn about students' peer learning model and social cohesion, and study their relationship with improving students' academic performance through the mediating role of problem solving efficiency.

Through sample selection, we can learn about the broader experience with peer learning model, social cohesion, problem solving efficiency and academic performance, enriching the data collection process of the sample and thus improving the reliability of the findings.

Results

The R-squared value of Model 1 is 0.496, indicating that the peer learning model (peer learning models) explains about 49.6% of the variance in academic performance (academic performance). The adjusted R-squared value is 0.494, and the explanatory power of the model remains stable after considering the effect of the number of independent variables in the model.

ANOVA analysis showed that the F-statistic of the regression part of Model 1 was 415.758, corresponding to a significance level of 0.000 ($p < 0.01$), indicating that the regression part of the model was significant and could explain the variability in academic performance.

The coefficients show that the standardized coefficient of the peer learning model is 0.704 and the t-statistic is 20.390, corresponding to a significance level of 0.000 ($p < 0.01$). This means that the peer learning model has a significant positive effect on academic performance. Specifically, for every one standard deviation increase in the peer learning model, academic performance increases by 0.704 standard deviations on average.

In summary, based on the provided model summary and ANOVA, we can conclude that in this model, the peer learning model has a significant positive effect on academic performance, and that the model has a high explanatory power to explain a significant percentage of the variability in academic performance.

The R-squared value of model 1 is 0.649, indicating that social cohesion (social cohesion) explains about 64.9% of the variance in academic performance (academic performance). The adjusted R-squared value is 0.648, and the explanatory power of the model remains stable after considering the effect of the number of independent variables in the model.

ANOVA showed that the F-statistic of the regression part of model 1 was 782.448, corresponding to a significance level of 0.000 ($p < 0.01$), indicating that the regression part of the model was significant and could explain the variability in academic performance.

The coefficients show that the standardized coefficient of social cohesion is 0.806 and the t-statistic is 27.972, corresponding to a significance level of 0.000 ($p < 0.01$). This implies that social cohesion has a significant positive effect on academic performance. Specifically, for every one standard deviation increase in social cohesion, academic performance increases by 0.806 standard deviations on average.

In summary, based on the model summary and ANOVA table provided, we can conclude that social cohesion has a significant positive effect on academic performance in this model and that the model has a high explanatory power to explain a significant percentage of the variability in academic performance.

The coefficient of Total Effect (Total Effect) is 0.7916, $p < 0.001$, indicating that the independent variable (peer learning model) has a significant total effect on the dependent variable (academic performance).

The coefficient of Direct Effect (Direct Effect) is 0.0140, $p > 0.05$, indicating that the direct effect of the independent variable (peer learning model) on the dependent variable (academic performance) is not significant.

The coefficient of Indirect Effect through problem solving efficiency is 0.7776, $p < 0.001$, and

the lower limit of the 95% confidence interval is 0.5989, and the upper limit is 0.9540, which means that there is a significant indirect effect of the independent variable (peer learning model) on the dependent variable (academic performance) through the mediator variable (problem solving efficiency), and the direction of this indirect effect is positive with a confidence interval that does not contain zero. , indicating that the indirect effect is significant.

In summary, the mediating variable (problem solving efficiency) plays the role of a full mediator between the independent variable (peer learning model) and the dependent variable (academic performance), i.e., the effect of the independent variable on the dependent variable is realized through the mediating variable. The direct effect was not significant, indicating that the effect of the independent variable on the dependent variable was mainly realized through the mediator variable when the mediator variable was considered.

The coefficient of Total Effect (Total Effect) is 0.7783, $p < 0.001$, indicating that there is a significant total effect of the independent variable (social cohesion) on the dependent variable (academic performance).

The coefficient of Direct Effect (Direct Effect) is 0.5287, $p < 0.001$, indicating that the direct effect of the independent variable (social cohesion) on the dependent variable (academic performance) is also significant.

The coefficient of Indirect Effect through Problem Solving Efficiency is 0.2495, $p < 0.001$ and the lower limit of 95% confidence interval is 0.1635 and the upper limit of 95% confidence interval is 0.3408 which means that the independent variable (social cohesion) has a significant indirect effect on the dependent variable (academic performance) through the mediator variable (problem solving efficiency) and the direction of this indirect effect is positive and the confidence interval does not contain 0,. This indicates that the indirect effect is significant.

In summary, the mediator variable (problem solving efficiency) plays a partially mediating role between the independent variable (social cohesion) and the dependent variable (academic performance), i.e., the effect of the independent variable on the dependent variable is realized to a certain extent through the mediator variable, but at the same time there is also a direct effect.

Discussion

The findings are thoroughly analyzed and interpreted in the context of existing literature, theoretical frameworks, and practical implications. This section delves into the implications of the findings, explores potential limitations, and makes recommendations for future research and educational practice.

Implications for Theory:

The findings of this study have important implications for educational theory, particularly in

the areas of cooperative learning, social cohesion, and problem-solving effectiveness. By elucidating the relationships between these constructs, this study contributes to the advancement of theoretical frameworks that guide educational practice and policy. The following are the main implications of the findings for educational theory:

1. Advancing social constructivist theory:

Social constructivism, rooted in Vygotsky's research, emphasizes the role of social interaction and collaboration in the construction of knowledge. The results of this study provide empirical support for the fundamentals of social constructivist theory by demonstrating the positive impact of peer learning models and social cohesion on academic performance. This validation strengthens the theoretical underpinnings of social constructivism by emphasizing the importance of social interaction in facilitating meaningful learning experiences.

2. Enriching collaborative learning theory:

Collaborative learning theory suggests that peer interaction and collaboration contribute to knowledge construction and problem solving skills. This study extends collaborative learning theory by emphasizing the mediating role of problem solving efficiency in the relationship between peer learning models, social cohesion, and academic performance. By identifying problem solving efficiency as a key mechanism by which collaborative learning experiences influence academic performance, this study enriches our understanding of the cognitive processes of collaborative learning.

3. Enhancing social cohesion theory:

Social cohesion theory emphasizes the importance of strong interpersonal relationships, trust, and collective efficacy beliefs in promoting a supportive learning environment. The results of this study demonstrate a positive correlation between social cohesion and academic performance, thus providing empirical support for social cohesion theory. In addition, problem solving efficiency was found to be a partial mediator in the relationship between social cohesion and academic achievement, which provides new perspectives on the mechanisms by which social cohesion influences student success.

4. Integrating multiple theoretical perspectives:

This study integrates multiple theoretical perspectives, including social constructivism, collaborative learning theory, and social cohesion theory, in order to fully understand the complex dynamics behind student academic performance. By elucidating the interplay between peer learning models, social cohesion, problem solving efficiency, and academic performance, this study promotes theoretical integration and coherence in the field of education.

5. Implications for educational practice and policy:

The theoretical implications of this study extend beyond academia to inform educational practice and policy. By validating theoretical constructs and illuminating the relationships between them, this study provides educators, policymakers, and practitioners with actionable insights to promote

student engagement, motivation, and achievement. The theoretical framework derived from this study can guide the development of evidence-based interventions and policies to improve educational outcomes and promote lifelong learning.

In summary, the findings of this study contribute to the development of educational theory by validating key constructs and elucidating their interrelationships. By integrating multiple theoretical perspectives and providing empirical evidence, this study enriches our understanding of the complex dynamics behind student learning outcomes and informs educational practice and policy.

Implications for Practice:

The findings of this study have far-reaching implications for educational practice, providing valuable insights into how educators and educational organizations can enhance students' learning experiences, promote academic success, and create supportive learning environments. By translating theoretical insights into actionable recommendations, this study aims to empower educators, policymakers, and practitioners to implement evidence-based strategies and interventions. The following are the key implications of the study findings for educational practice:

1. Promoting collaborative learning environments:

The study emphasizes the importance of peer learning models (e.g., collaborative learning and peer tutoring) in improving academic performance. Educators can utilize these collaborative learning methods to create interactive and engaging classroom environments where students are actively involved in knowledge construction. By facilitating peer interactions, group discussions, and collaborative problem-solving activities, educators can foster a culture of collaboration and mutual support among students, leading to improved academic performance.

2. Fostering social cohesion and inclusion:

Social cohesion in educational settings is critical to fostering a sense of belonging, trust, and collective efficacy among students. Educators can promote social cohesion by fostering positive relationships, building a supportive classroom culture, and creating opportunities for peer collaboration and teamwork. By implementing inclusive teaching practices and valuing diverse perspectives, educators can foster a welcoming, inclusive learning environment where all students feel respected, supported, and empowered to succeed.

3. Develop problem-solving skills:

Problem-solving effectiveness is a key mediator of the relationship between peer learning models, social cohesion, and academic performance. Educators can enhance students' problem-solving skills by incorporating real-world challenges, case studies, and collaborative projects into the curriculum. By providing students with opportunities to apply critical thinking, creativity, and collaboration to solve complex problems, educators can prepare them for academic, professional, and personal success.

4. Integrate technology-enhanced learning:

Educational technology plays a pivotal role in facilitating collaborative learning experiences and increasing student engagement. Educators can utilize digital tools, online platforms, and virtual collaboration spaces to facilitate peer interaction, knowledge sharing, and collaborative problem solving. By integrating technology into the teaching and learning process, educators can provide personalized learning experiences, expand access to educational resources, and promote active student participation in the learning process.

5. implement evidence-informed interventions:

The findings of this study provide empirical support for the effectiveness of peer learning models and social cohesion in improving academic performance. Educators and policymakers can use these insights to design evidence-based interventions and actions to promote student success. By investing in professional development, teacher training programs, and educational resources aligned with the principles of collaborative learning and social cohesion, institutions can create supportive learning environments that are conducive to academic excellence.

6. Advocate for policy reform:

The findings advocate for policy reforms and institutional support that prioritize collaborative learning approaches, promote social cohesion, and enhance student well-being. Policymakers can use these insights to advocate for policies that support the integration of peer learning models, social-emotional learning initiatives, and inclusive education practices into state and district education systems. By prioritizing student-centered approaches and investing resources to support educators' professional development, policymakers can create a more equitable and inclusive education system that promotes the success of all students.

In summary, the findings provide actionable recommendations for educators, policymakers, and practitioners to promote collaborative learning, foster social cohesion, and improve student achievement. By implementing evidence-based strategies, utilizing educational technology, and advocating for policy reform, stakeholders can create supportive learning environments where students thrive academically, socially, and emotionally.

Conclusions

The final outcome of this study reveals the intricate and dynamic relationship between peer learning models, social cohesion, problem-solving efficiency and academic performance in an educational context. Based on reliable empirical evidence and contemporary literature, the findings emphasize the important relationship between these variables and elucidate the mechanisms by which these variables influence students' academic performance.

1. Peer learning model and academic performance

The findings of the study clearly affirm the positive and statistically significant impact of peer learning model on academic achievement. The results of this study are consistent with previous findings that emphasize the effectiveness of collaborative learning approaches in improving students' academic performance (Roseth et al., 2018; Johnson & Johnson, 2017). By providing students with opportunities to engage in collaborative problem solving, share ideas, and support each other's learning, the peer learning model creates an environment conducive to knowledge acquisition and academic achievement.

2. Social cohesion and academic performance

Similarly, research has shown that social cohesion has a significant positive impact on academic performance. This is in line with existing literature that emphasizes the importance of supportive and inclusive learning environments in promoting student engagement and success (Caldwell & Jorgensen, 2017; Thompson & Dey, 2019). By fostering strong interpersonal relationships, trust, and collective efficacy beliefs among students, social cohesion contributes to a sense of belonging and motivation, which ultimately improves academic performance.

3. Mediating role of problem solving efficiency

One of the main contributions of this study is the elucidation of problem solving efficiency as an important mediator of the relationship between peer learning model, social cohesion and academic performance. It was found that problem solving efficiency fully moderated the relationship between peer learning model and academic achievement, highlighting the importance of students' adaptive thinking skills and metacognitive strategies in translating collaborative learning experiences into actual academic outcomes.

In summary, the results of this study provide valuable insights into the complex interplay between peer learning models, social cohesion, problem solving efficiency, and academic performance. These insights have far-reaching implications for educational practice and policy, underscoring the importance of fostering collaborative learning environments and promoting social cohesion in educational settings to optimize student success.

References

Bandura, A. (2012). On the Functional Properties of Perceived Self-Efficacy Revisited. *Journal of Management*, 38(1), 9–44.

Caldwell, T., & Jorgensen, B. (2017). Social Cohesion and Educational Outcomes: The Experience of Ghana. *Social Indicators Research*, 134(1), 305–328.

Coleman, J.S. (1988). Social Capital in the Creation of Human Capital. *American Journal of Sociology*, 94(Supplement), S95-S120.

Deci, E.L., & Ryan, R.M. (2018). Self-Determination Theory: A Macro-theory of Human Motivation, Development, and Health. *Canadian Psychology*, 49(3), 182–185.

Eccles, J.S., & Wigfield, A. (2020). From expectancy-value theory to situated expectancy-value theory: A developmental, social cognitive, and sociocultural perspective on motivation. In *Handbook of motivation at school* (2nd ed., pp. 47–58). Routledge.

Finn, J.D., & Rock, D.A. (2017). Academic Success among Students at Risk for School Failure. *Journal of Applied Psychology*, 102(2), 347–362.

Hanushek, E.A., & Woessmann, L. (2015). *The Knowledge Capital of Nations: Education and the Economics of Growth*. MIT Press.

Hoskins, D., Fredrickson, B.L., & Lee, J.K. (2020). Associations between social cohesion and cognitive function: the Long Beach Aging Study. *Journal of Epidemiology and Community Health*, 74(3), 257–262.

Jiang, X., & Yu, Z. (2019). Social Cohesion and College Student Performance: Moderating Effects of Program Engagement. *Research in Higher Education*, 60(3), 341–361.

Johnson, D.W., & Johnson, R.T. (2018). Cooperative Learning in 21st Century. *Annual Review of Education, Communication, and Language Sciences*, 14, 224–241.

Nawrotzki, R.J., Rodgers, R., & Alizadeh, A. (2020). Toward an understanding of social cohesion and its relationship to socio-demographic factors in disaster recovery: A case study of Hurricane Harvey. *Social Sciences*, 9(1), 1–21.

Putnam, R.D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. Simon and Schuster.

Roscoe, R.D., & Chi, M.T.H. (2020). The scaffolding theory: What the implications are for research and practice in education?. *Educational Psychology Review*, 32, 43–77.

Roseth, C.J., Johnson, D.W., & Johnson, R.T. (2018). Promoting early adolescents' achievement and peer relationships: The effects of cooperative, competitive, and individualistic goal structures. *American Educational Research Journal*, 55(2), 305-343.

Schneider, M., & Preckel, F. (2017). Variables Associated with Achievement in Higher Education: A Systematic Review of Meta-Analyses. *Psychological Bulletin*, 143(6), 565–600.

Strobel, J., & van Barneveld, A. (2009). When is PBL More Effective? A Meta-synthesis of Meta-analyses Comparing PBL to Conventional Classrooms. *Interdisciplinary Journal of Problem-Based Learning*, 3(1), 44–58.

Thompson, R.A., & Dey, S.K. (2019). Social capital and normative influence: Impacts on collective and individual disaster recovery. *Journal of Contingencies and Crisis Management*, 27(1), 25–36.

Topping, K. (2017). Peer Learning. In *The Wiley Handbook of What Works in Child Maltreatment: An Evidence-Based Approach to Assessment and Intervention in Child Protection* (pp. 207–216). Wiley.

Wang, M.T., & Eccles, J.S. (2013). School Context, Achievement Motivation, and Academic Engagement: A Longitudinal Study of School Engagement Using a Multilevel Modeling Approach. *Learning and Instruction*, 28, 12–23.

Yamane, T. (1973). *Statistics: An introductory analysis*. London.