



Games to Grades: Evaluation of Psychological Capital, Emotional Intelligence, and Virtual Team Performance among Project Teams

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ABSTRACT

Group projects are frequently used in higher education courses to facilitate collaboration; however, group effectiveness can vary greatly, resulting in individual stress and poor academic performance. To alleviate this, some instructors utilize peer evaluation. While instructors are well intentioned these rubrics rarely, if ever, are grounded in the constructs of collaboration that they wish to foster. This research poster reports on an ongoing project to develop a self and peer evaluation grounded in psychological capital and emotional intelligence, the EQ-PSY Evaluation. These constructs were selected based on their dimensions for individual and social capacities to capture effective teamwork.

This poster will report on preliminary findings from a semester-long leadership course which is designed to scaffold students through a group-led project and implemented the EQ-PSY Evaluation. Findings will be discussed, and attendees will be able to provide feedback to the researchers. The EQ-PSY Evaluation will be available for attendees to modify and take back to use in their own teaching contexts. This project has implications for understanding member interaction among student project teams, and potential implications for how educators can facilitate teams to interact more effectively together.

INTRODUCTION & BACKGROUND

There is growing research on Emotional Intelligence (EQ) and Psychological Capital (PsyCap) as important capacities associated with leadership and organizational effectiveness. PsyCap focuses on an individual's strengths often comprised of four dimensions: confidence, hope, optimism, and resilience (Luthans, et. al., 2004). PsyCap is related to important organizational outcomes such as satisfaction, organizational commitment, well-being, and citizenship behaviors (Avey, Reichard, Luthans & Mhatre, 2011).

Psychological Capital (PsyCap)

- Definition: "an individual's positive psychological state of development that is characterized by: (1) having confidence (*self-efficacy*) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (*optimism*) about succeeding now and in the future; (3) persevering toward goals and, when necessary, redirecting paths to goals (*hope*) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (*resilience*) to attain success" (Luthans, Youssef, & Avolio, 2007, p. 3).
- Team Context:
 - Team PsyCap: related to team-level outcomes as team learning, team citizenship behaviors (Bogler & Somech, 2019), team performance (Dawkins, Martin, Sanderson, & Schuz, 2018), team learning and team innovation (Tho & Duc, 2021) and team learning climate (Heled, et.al., 2016).

Emotional Intelligence (EI)

- Definition: "the ability to monitor one's own and others' feeling and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990, p. 189).
- Self-awareness* is related to knowing one's emotions and other internal assets as strengths, weaknesses, drives, values and goals. *Social awareness* is related to diagnosing what others are feeling, being able to take their perspective and being able to cultivate rapport with a broad diversity of people. *Self-regulation* involves handling our emotions in order to facilitate rather than interfere with the task at hand. *Relationship management* refers to how one handles emotions in the context of relationships particularly related to reading social situations, interaction smoothly and using skills for cooperations and teamwork by persuading, leading, negotiating to settle disputes.
- Team Context:
 - Team Leader EI: related to team performance, team viability and member satisfaction (Mysirlaki & Paraskeva, 2020)
 - Team EI: related to performance, innovation, cohesion; moderates task conflict and team outcomes (Lee & Wong, 2017)

EQ involves an individual's capacities to identify and understand the emotional states of themselves and those with whom they work (Kanesan & Fauzan, 2019) and is often comprised of four dimensions: self-awareness, social awareness, self-management, and relationship management (Goleman, 2001). EQ is related to key outcomes such as increased satisfaction, increased organizational commitment, and decreased turnover intentions (Miao, Humphrey & Qian, 2017).

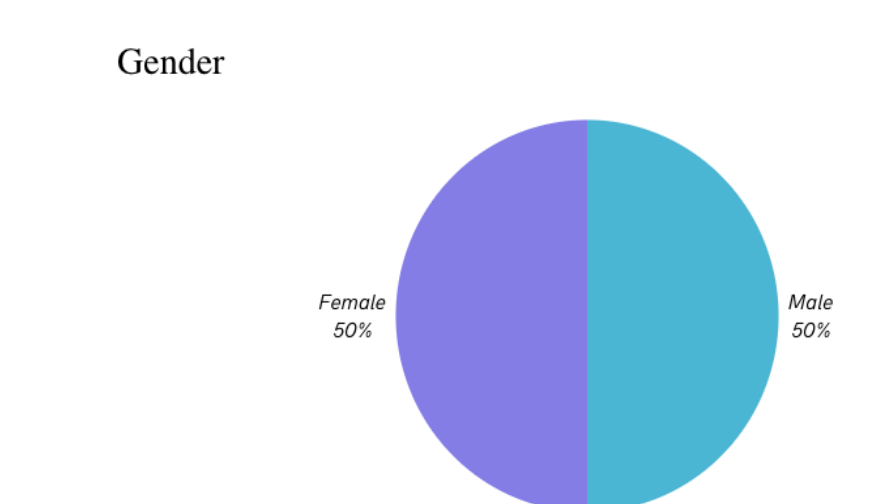
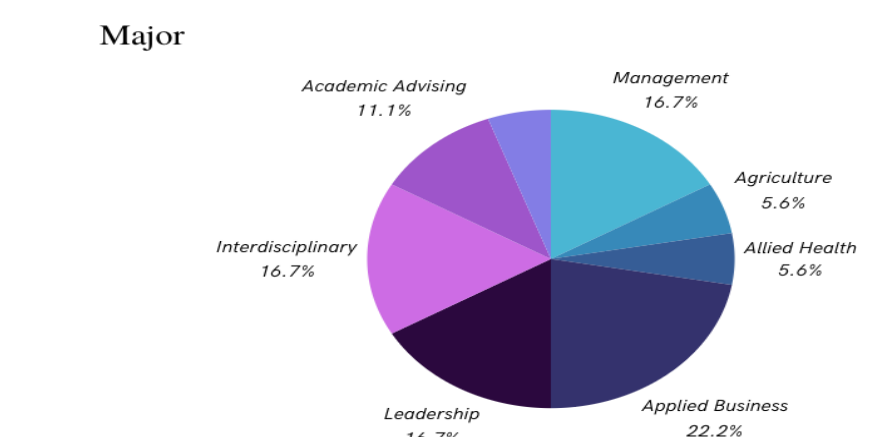
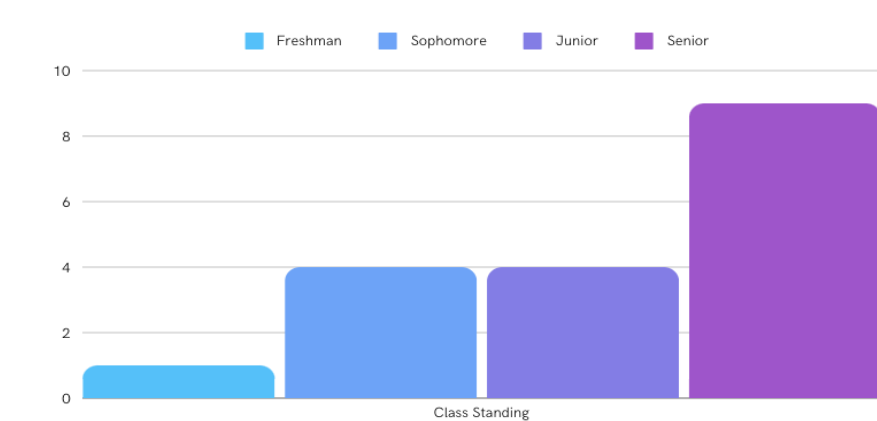
Yet, limited research exists on how team members express these capacities and how they impact team effectiveness. Team projects/presentations are among the most common pedagogical practices in leadership education (Jenkins, 2012). Many leadership educators develop robust tools (e.g., grading rubrics), to evaluate team performance. However, challenges remain on measuring key leadership capacities that do not readily transfer into the products of teamwork. Unfortunately, we often rely on less-than-reliable assessments to gauge the quality of team interaction regarding important leadership capacities related to key program learning outcomes.

Research Question

How can survey design principles be effectively applied to develop a peer evaluation instrument encompassing dimensions of emotional intelligence and psychological capital, ensuring validity, reliability, and practical utility in assessing individual and team effectiveness in student project teams?

The course requires student teams to collaborate on a semester-long project. The project is introduced during the third week and remain intact through the duration of semester to complete a series of four assignments. Project teams are determined by the instructor who applies criteria such as gender, class standing (e.g., Senior, Junior) and major in order to achieve a diverse mix of team membership. The EQ-PSY Evaluation is grounded in EQ and PsyCap constructs which are directly related to essential course objectives. The researchers piloted the EQ-PSY Evaluation form and examined the relationship between team members' EQ and PsyCap and team effectiveness. Thus, the purpose of this study is to assess the EQ-PSY Evaluation form and validate a framework of member demonstrations of EQ and PsyCap in the context of team interaction.

Sample Demographics



- N = 18 students
- 4-5 students per student team
- Each student submitted 2 peer evaluations for each of their group member (n = 145 evaluations)
- The peer evaluation is implemented at the midpoint and end of the semester-long project
- Student teams meet in and outside of course time
- Implemented in the on campus and online courses

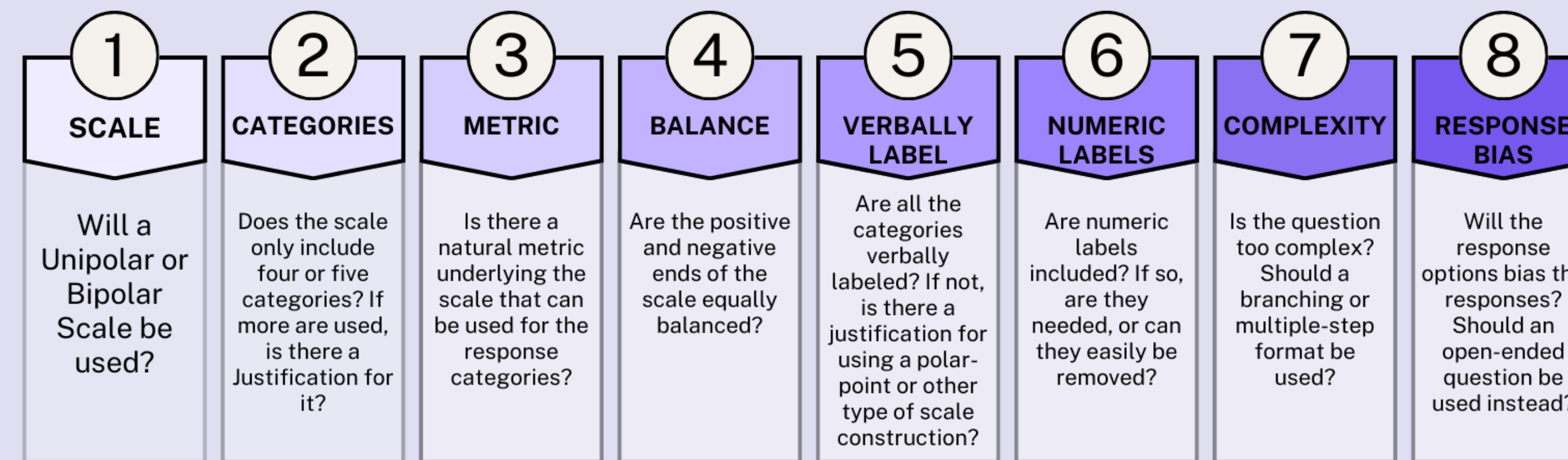
WHAT IS FENTANYL?
Fentanyl is a potent synthetic opioid drug featured by the Food and Drug Administration for use as an analgesic (pain relief) and anesthetic. It is approximately 500 times more potent than morphine and 50 times more potent than heroin as an analgesic.

Deaths from fentanyl overdoses have exponentially increased in the last decade which has earned the synthetic opioid the title of being an Epidemic. According to the Center for Disease Control, every single day, over 150 people die from overdosing on synthetic opioids, like fentanyl.

Survey Development Steps

GUIDELINES FOR

ORDINAL CLOSED-ENDED QUESTIONS



Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method*. John Wiley & Sons

Original Item - #09 : Shows persistence of effort despite setbacks; Goes above and beyond to see a project through to completion.
Revised Item - Q2: Maintains positive attitude when encountering adversity.
Revised Item - Q3: Show persistence of effort despite setbacks.

Original Item - #02: Demonstrates ability to work with people who are different from them; Empathetic to other people's feelings & ideas
Revised Item - Q1: Able to understand other team members' feelings and ideas.

Original Item - #20: Always tells the truth and deals honestly with people; Always treats people fairly and on an equal basis; Does everything s/he promises to do.
Revised Item - Q19: Always deals honestly with people.
Revised Item - Q20: Follows through with responsibilities in a timely manner.

Original Item - #19: Is on time to all team activities; Gives positive and forward-focused comments; Accepts a role and is open to rotation of roles; Places highest priority on team success rather than on personal benefits; Always does the assigned work without having to be reminded.
Revised Item - Q18: Takes ownership/responsibility of personal mistakes when they occur.
Revised Item - Q12: Proactively claims appropriate team tasks or roles (in contrast to waiting for team members to tell him/her what to do)

Original Item - #04: The student is able to see multiple ways of reacting to changes in conditions. He/she can independently monitor and adjust his/her own positions in response to change.
Revised Item - Q5: Able to see multiple ways of reacting to changes in situations.
Revised Item - Q6: Offers creative ideas.
Revised Item - Q7: Invites others to offer creative ideas.

FINDINGS

Emotional Intelligence	Mean	S.D.	Alpha, if item removed (all items)	Alpha, if item removed (after removing weakest item)
Able to understand other team members' feelings and ideas	4.38	.78	.600	
Maintains a positive attitude when encountering adversity	4.36	.81	.536	
Shows persistence of effort despite setbacks	4.28	.86	.627	
Inappropriately vocalizes or in other ways (e.g., non-verbal) expresses frustration (R)	4.83	.46	.822	
Composite Alpha			.734	

NOTE: (R) reverse scored item

Creative Thinking and Acting	Mean	S.D.	Alpha, if item removed (all items)	Alpha, if item removed (after removing weakest item)
Able to see multiples ways of reacting to changes in situations	4.03	.87	.630	.792
Offers creative ideas	3.99	.87	.466	.632
Invites others to offer creative ideas	4.02	.92	.513	.667
Quells or in other ways diminishes the creative ideas of others without proper consideration (R)	4.96	.29	.779	
Composite Alpha			.698	.779

NOTE: (R) reverse scored item

Team Cohesion	Mean	S.D.	Alpha, if item removed (all items)	Alpha, if item removed (after removing weakest item)
Offers encouraging comments to help the team build relationships	4.14	.92		
Offers discouraging or otherwise negative comments that weaken team cohesion (R)	4.97	.20		
Composite Alpha			.158	

NOTE: (R) reverse scored item

Cronbach's Alpha	Interpretation
$\alpha > 0.9$	Excellent
$\alpha > 0.8$	Good
$\alpha > 0.7$	Acceptable
$\alpha > 0.6$	Questionable
$\alpha > 0.5$	Poor

Note: Adapted from George, D., & Mallery, M. (2009)

Conflict Management	Mean	S.D.	Alpha, if item removed (all items)	Alpha, if item removed (after removing weakest item)
Consistently seeks positive solutions to conflict between members	3.93	1.07		
Takes ownership/responsibility of personal mistakes when they occur	4.32	.96		
Composite Alpha			.660	

NOTE: (R) reverse scored item

Credibility	Mean	S.D.	Alpha, if item removed (all items)	Alpha, if item removed (after removing weakest item)
Always deals honestly with people	4.55	.78		
Follows through with responsibilities in a timely manner	4.44	.88		
Composite Alpha			.772	

NOTE: (R) reverse scored item

Task Orientation	Mean	S.D.	Alpha, if item removed (all items)	Alpha, if item removed (after removing weakest item)
Proactively claims appropriate team tasks or roles (in contrast to waiting for team members to tell him/her what to do)	3.92	1.09	.786	
Offers suggestions toward implementing others' ideas (e.g., building off of the ideas of others)	4.03	.92	.728	
Willing assists other team members	4.40	.92	.628	
Composite Alpha			.788	

NOTE: (R) reverse scored item

Grade	Mean	S.D.	Minimum	Maximum
Non-Consent	76.48	22.47	9.50	94.68
Consent	86.91	11.86	49.46	97.68

Grade	Mean	S.D.	Minimum	Maximum
Non-Consent (without outliers)	85.42	9.23	56.39	94.68
Consent	86.91	11.86	49.46	97.68

METHODS

Data Collection & Sample

Data was collected from student teams in the semester-long leadership course. Survey items on the EQ-PSY Evaluation were developed being mindful of key principles and procedures associated with content validity (Schwab, 2004). Students submitted responses for each team member at the midpoint and end of the project and analysis was run to evaluate reliability and content validity.

- Participants were recruited by email and announcements posted within Blackboard from two online sections of the LDRS 306: Leadership and Team Dynamics Course inviting them to complete the web-based survey
- Data was collected by survey response using the revised "Peer- and Self- Evaluation Rubric"
- Data were imported from Excel into SPSS for analysis
- The two open ended items included in the "Peer- and Self- Evaluation Rubric" were not included for analysis

Construct Validation

There are several common procedures to help researchers develop construct valid measures: 1) Content Validity; 2) Reliability; 3) Convergent Validity; and 4) Discriminant Validity (Schwab, 2004).

Content Validity

A measure is content valid when items are judged to accurately reflect the domain of the defined construct. Typically, content validation is a process of having experts in the subject matter assess survey items as they pertain to the construct. Face validity, a variation of content validity, is achieved "when its items appear to reflect the construct as defined conceptually." (Schwab, 2004, p. 31). We engaged in a process of face validation because the researchers developed the items based on prior content analysis of team interactions related to the constructs.

Reliability

Reliability refers to the "systematic or consistent variance of a measure" and thus indicating the degree to which measurement scores are free from random error (Schwab, 2004, p. 32). Reliability statistics provide an estimate of total variability in a set of scores that is systematic. Internal consistency reliability describes the relationship of items scores achieved on a measure that has multiple items. A common method for assessing reliability is the coefficient of Cronbach's alpha. Alpha coefficient at or above 0.7 is acceptable (George & Mallery, 2009). We conducted statistical processes to gauge the level of internal consistency by tabulating Cronbach's alpha which also integrated the "if item removed" function. This procedure not only calculated the Cronbach alpha on all of the items of the dimension, but also calculated the alpha if that particular survey item was removed.

Convergent Validity

Convergent validity exists when there is a high relationship between scores from two or more measures of the same construct (Schwab, 2004). This is important because it must be present for scores from both measures are construct valid. At present, the researchers have yet to engage a process for determining convergent validity.

Discriminant Validity

Discriminant validity is presumed when scores from measures of different constructs do not converge, hence it provides information about whether results from a measure of a construct are unique rather than contaminated by other constructs. At present, the researcher have yet to engage in procedure for evaluating divergent validity.

Preliminary Findings, Limitations & Next Steps

Preliminary Findings

- Communication (.841) and Task Orientation (.788) achieved a Good and Acceptable level of reliability respectively, when testing for all of the survey items. Coefficient alphas would only decrease if any of the items were removed.
- Emotional Intelligence (.734) achieved an Acceptable level of reliability. While removing one item may increase alpha coefficient to a Good level, it is unnecessary to do so.
- Creative Thinking and Acting (.698) achieved a level of Questionable reliability when testing for all items. However, the coefficient alpha increased to an Acceptable level (.779)
- One, 2-item dimension, Credibility (.772), yielded Acceptable reliability, whereas one, 2-item dimension, Conflict Management (.660), only achieved a Questionable level.
- One of the dimensions, Team Cohesion (.158), yielded an extremely poor coefficient alpha. Items will need to be revised and retested.

Limitations

- Systematic errors may impact results. Sixteen of 20 survey items averaged above 4.0 on a 5-point Likert-type scale and the remaining four items were above 3.9.
- Sample size was small. Eighteen out of a potential 49 students consented to participate in the study. While this yielded 145 iterations of completed surveys, we desire more respondents.

Continue Data Collection

- Researchers anticipate meaningful patterns to emerge, informing the iterative design of the EQ-PSY Evaluation. Findings from this project have implications for facilitating effective teamwork with group projects and grounding EQ-PSY Evaluation in EQ and PsyCap.

Revision and Development of Additional Items

- Content Validation: measure is "content valid when its items are judged to accurately reflect the domain of the construct as defined conceptually (Schwab, 2004, p. 31). As items are revised and new items created, researchers will engage content experts (e.g., LDRS faculty) to judge items for content validity.
- Convergent Validation: convergent validity is present when there is a high correlation between two or more measures of the same construct (Schwab, 2004).
- Divergent Validity: divergent validity is inferred when scores from measures that are for different constructs are not related (Schwab, 2004). Researchers ought to incorporate the use of additional measures to evaluate convergent and divergent validity.

REFERENCES

Avey, J. B., Reichard, R. J., Luthans, F., & Mhatre, K. H. (2011). Meta-analysis of the impact of positive psychological capital on employee attitudes, behaviors, and performance. *Human resource development quarterly*, 22(2), 127-152.

Bogler, R., & Somech, A. (2019). Psychological capital, team resources and organizational citizenship behavior. *The Journal of psychology*, 153(3), 784-802.

Dawkins, S., Martin, A., Scott, J., Sanderson, K., and Schuz, B. (2018). A cross-level model of team-level psychological capital (PsyCap) and individual- and team-level outcomes. *Journal of Management & Organization*. doi: 10.1017/jmo.2018.27.

Dillman, D. A., Smyth, J. D., & Christian, L. M. (2014). *Internet, phone, mail, and mixed-mode surveys: The tailored design method*. John Wiley & Sons

George, D., & Mallery, M. (2009). *Using SPSS for Windows step by step: a simple guide and reference* (10th ed.). Allyn & Bacon.

Goleman, D. (2001). An EI-based theory of performance. In C. Cherniss & D. Goleman (Eds.), *The emotionally intelligent workplace: How to select for, measure, and improve emotional intelligence in individuals, groups, and organizations* (pp. 27-44). San Francisco, CA: JosseyBass.

Heled, E., Somech, A., and Waters, L. (2018). Psychological Capital as a team phenomenon: mediating the relationship between learning climate and outcomes at the individual and team levels. *The Journal of Positive Psychology*, 13(3), 303-314.

Jenkins, D. M. (2012). Exploring signature pedagogies in undergraduate leadership education. *Journal of Leadership Education*, 11(1), 1-27.

Kanesan, P., & Fauzan, N. (2019). Models of emotional intelligence: A review. *Journal of Social Sciences and Humanities*, 16(7), 1-9.

Lee, C., & Wong, C. S. (2019). The effect of team emotional intelligence on team process and effectiveness. *Journal of Management & Organization*, 25(6), 844-859.

Luthans, F., Luthans, K. W., & Luthans, B. C. (2004). Positive psychological capital: Beyond human and social capital. *Business Horizons*, 47(1), 45-50.

Luthans, F., Youssef, C. M., & Avolio, B. J. (2007). *Psychological capital: Developing the human competitive edge*. Oxford University Press.

Miao, C., Humphrey, R. H., & Qian, S. (2017). A meta-analysis of emotional intelligence and work attitudes. *Journal of Occupational & Organizational Psychology*, 90(2), 177-202. <https://doi.org/10.1111/joop.12167>

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, cognition and personality*, 9(3), 185-211.

Schwab, D. P. (2004). *Research methods for organizational studies*. Taylor and Francis Group.

Tho, N. D., & Duc, L. A. (2021). Team psychological capital and innovation: the mediating of team exploratory and exploitative learning. *Journal of Knowledge Management*, 25(7), 1745-1759.