Citation: Yeh, Y.*, Wang, C. M., Pappachana, P., & Chang, S. L. (2026). Enhancing Creative Problem-Solving Ability Through an Integrative Mindfulness Intervention: The Mediating Role of Critical-thinking dispositions. Thinking Skills and Creativity, 62, Part B. https://doi.org/10.1016/j.tsc.2026.102333

Inventory of Creative Problem-Solving Ability (ICPSA)

The development of ICPSA

In the reliability analysis, the Cronbach's α coefficients for the ICPSA overall and its four factors were .95, .86 (Clarify), .86 (Ideate), .88 (Develop), and .86 (Implement). The test items are presented in Table 2. Additionally, item-total correlation coefficients ranged from .39 to .65, and the correlations between each factor and the total score ranged from .68 to .91 (ps < .001), as shown in Table 3.

Table 1. *Items and the Cronbach's α of ICPSA*

No	Items
	Factor 1: Clarify (α = .86)
1	When solving problems, I can first analyze the essence of the problem rather than merely focusing on surface phenomena.
2	When solving problems, I can define the problem I am facing from a new perspective.
3	When the problem is unclear, I can think from different angles and gradually clarify the problem.
4	When clarifying a problem, I can consider the causal relationships among possible influencing factors.
5	When clarifying a problem, I can raise questions and detect the possible existence of problems.
6	When solving problems, I can integrate diverse and complex information to clearly articulate the problem to be solved.
	Factor 2: Ideate (α = .86)
7	When thinking about solutions, I can generate ideas by tracing the root cause of the problem.

8	When thinking about solutions, I can integrate complex information to propose solutions.
9	When thinking about solutions, I can approach the issue from different perspectives to suggest possible solutions.
10	When thinking about solutions, I can come up with diverse alternatives.
11	When thinking about solutions, I can effectively use resources (e.g., discussing with others or searching online) to inspire innovative ideas.
12	When thinking about solutions, I can incorporate context and relevant factors for a comprehensive evaluation
	Factor 3: Develop (α = .88)
13	Before deciding on a solution, I can analyze the advantages and disadvantages of various options.
14	When planning a solution, I can consider the potential impacts and effectiveness in the short, medium, and long term.
15	For the chosen solution. I can predict potential difficulties and propose ways to address them.
16	When deciding on a solution, I can plan feasible alternative options.
17	I can integrate various solutions to form a more comprehensive problem-solving plan..
18	After selecting a solution, I can plan a concrete and feasible action strategy.
	Factor 4: Implement (α = .86)
19	During the implementation of the solution, I can reflect on the process and make appropriate adjustments.
20	When encountering difficulties in implementing a solution, I can identify possible influencing factors.
21	When encountering difficulties during the implementation of the solution, I can remain optimistic and try various problem-solving methods.
22	When the original solution becomes unworkable, I can decisively revise the plan or seek alternative solutions.
23	During the implementation of the solution, I can analyze the gap between the current situation and the expected goals, and continuously review and improve.
24	When the problem-solving process is not going smoothly, I can persist and continue striving to solve the problem and achieve the goal.

Table 2. *The correlations between each factor and the total score of the CPSA*

	Clarify	Ideate	Develop	Implement	Total
Clarify	—				
Ideate	.82***	—			
Develop	.77***	.75***	—		
Implement	.68***	.73***	.75***	—	
Total	.90***	.91***	.91***	.88***	—

*** p <.001.

Since the ICPSA was developed based on well-established CPS models (58.Puccio et al., 2023; 68.Treffinger & Isaksen, 2005), we conducted both a general confirmatory factor analysis (CFA) and a multiple-group CFA to examine its construct validity and stability. The general CFA results indicated that the ICPSA demonstrated good construct validity and reliability, $\chi^2(N = 406, df = 246) = 651.21$, $p < .001$. The fit indices were as follows: GFI = .88, AGFI = .85, SRMR = .04, RMSEA = .06, IFI = .93, and CFI = .93. For multiple-group validation, participants were randomly divided into two groups (n = 206 and n = 200). The cross-sample CFA yielded $\Delta\chi^2(\Delta df) = 5.314$, $p = .869$, indicating that the four-factor model is stable and valid across groups.

Table 1. The reliability analysis of the ICPSA

No	Items	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
1	解決問題時，我能先分析問題的本質，而不會只看表象。	.635	.544	.952
2	解決問題時，我能用新的視角定義目前遭遇的問題。	.667	.554	.952
3	在問題不明時，我能從不同面向思考，逐步釐清問題。	.701	.602	.952
4	在釐清問題時，我能思考可能影響因素之間的因果關係。	.678	.561	.952
5	在釐清問題時，我能提出質疑，察覺問題存在的可	.644	.487	.952

	能。			
6	解決問題時，我能統整多元複雜的訊息，明確陳述待解決問題。	.678	.564	.952
7	思考問題解決方法時，我能從問題的本源開始發想。	.657	.512	.952
8	思考問題解決方法時，我能統整複雜的訊息，提出解決方法。	.712	.590	.951
9	思考問題解決方法時，我能從不同角度切入，提出可能的解決方法。	.755	.623	.951
10	思考問題解決方法時，我能想出多元的替代方案。	.639	.475	.952
11	思考問題解決方法時，我能善用資源(例如：與他人討論或搜尋網路訊息)，激發創新想法。	.562	.434	.953
12	思考問題解決方法時，我能納入情境及相關因素，進行整體評估。	.665	.511	.952
13	在選定解決方法之前，我能分析各種解決方法的利弊。	.695	.551	.952
14	在規劃解決方案時，我能考量短、中、長期的可能影響因素與成效。	.618	.532	.953
15	針對選定的解決方案，我能預測可能遇到的困難，並提出解決方法。	.701	.586	.952
16	決定問題解決方案時，我能同時規劃較可行的備選方案。	.670	.523	.952
17	我能整合各種解決方法，形成一個較完整的問題解決方案。	.724	.595	.951
18	選定解決方案後，我能規劃一套具體可行的行動策略。	.748	.622	.951
19	在執行解決方案的過程中，我能反思並做適當的調整。	.738	.606	.951
20	在執行解決方案遭遇困難時，我能釐清各種可能的影響原因。	.739	.583	.951
21	在執行解決方案遭遇困難時，我能樂觀以對，嘗試各種問題解決方法。	.531	.411	.954
22	.當解決方案窒礙難行時，我能果斷修正原訂計畫或尋求替代方案。	.632	.533	.952
23	在執行解決方案的過程中，我能分析現況與預定目標的落差，不斷檢討改進。	.682	.559	.952
24	當問題解決過程不順利時，我仍能堅持下去，努力解決問題與實踐目標。	.564	.498	.953