Digital Scaffolding Strategies in Instructional Design: Enhancing Independent Learning Among Pre-University Students

You are invited to participate in a research study titled "Digital Scaffolding Strategies in Instructional Design: Enhancing Independent Learning Among Pre-University Students," which aims to understand how digital scaffolding strategies (such as checklists, rubrics, automated reminders, and feedback) influence independent learning among pre-university students. Your participation involves completing an anonymous online questionnaire that will take approximately 8–10 minutes, consisting of three parts covering the frequency of digital scaffolding strategies used in your course, your level of independent learning, and your perception of how digital scaffolding influences your learning. Participation is entirely voluntary, and you may withdraw at any time without penalty; however, because the survey is anonymous and no personally identifiable information (such as names, email addresses, or IP addresses) is collected, individual responses cannot be withdrawn once submitted. There are no foreseeable risks associated with this study, and while there are no direct personal benefits, your responses will contribute to a better understanding of how to support students in digital learning environments and may benefit future learners. Your anonymised responses will be combined with those of other participants and used solely for academic and scholarly purposes, including publications, conference presentations, or educational reports.

Instructions for Respondents

Thank you for participating in this study on digital scaffolding strategies and independent learning. Please read the following instructions carefully before answering:

- This questionnaire is anonymous and there are no right or wrong answers.
- Your honest responses will help us better understand how digital scaffolding supports independent learning.
- The questionnaire is divided into three main parts, each related to the study objectives.
- For each statement, select the response that best reflects your experience or opinion.
- Use the 5-point scale provided for each section (e.g., from Never to Very often, or Strongly disagree to Strongly agree).
- The survey will take about 8–10 minutes to complete.
- Please answer based on your most recent experience in your current or latest pre-university course.

Thank you again for your valuable contribution.

1. Consent to Participate

By clicking "I agree" below and proceeding to the next section, you confirm that you have read and understood the information provided above, that you are a pre-university student or have recent experience in a pre-university course, that you voluntarily agree to participate in this study, and that you agree to the use and publication of your anonymised responses for academic and scholarly purposes. If you have any questions about this study, please contact [aanaashmirul@unimas.my] before proceeding.

Mark only one oval.

- ◯ I agree to participate in this research study.
- ◯ I do not agree to participate in this research study.

2. Consent to Publish

Mark only one oval.

- ◯ I agree to the use and publication of my anonymised responses and research findings for academic and scholarly purposes.
- ◯ I do not agree to the use and publication of my responses and research findings.

Part A. Background Information (Basic Demographics)

3. Gender

Mark only one oval.

- ◯ Male
- ◯ Female

4. Programme

Mark only one oval.

- Life Science
- Physical Science
- Computer Science
- International Foundation Science

5. Main learning platform used

Mark only one oval.

- Google Classroom
- Moodle
- Canvas
- Teams
- eLeap
- Other: _____

Objective 1: Commonly Used Digital Scaffolding Strategies

Instruction: Indicate how often the following supports were provided in your course.
Scale: 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very often

6. Clear weekly instructions were posted in the learning platform.

Mark only one oval.

	1	2	3	4	5	
Nev	◯	◯	◯	◯	◯	Very often

7. Checklists or task lists were provided to guide my learning.

Mark only one oval.

	1	2	3	4	5	
Nev	◯	◯	◯	◯	◯	Very Often

8. Assessment rubrics were shared before tasks began.

Mark only one oval.

	1	2	3	4	5	
Nev	◯	◯	◯	◯	◯	Very Often

9. Sample answers or exemplars were provided for assignments.

Mark only one oval.

	1	2	3	4	5	
Nev	◯	◯	◯	◯	◯	Very Often

10. Course content was divided into small, manageable units.

Mark only one oval.

	1	2	3	4	5	
Nev	◯	◯	◯	◯	◯	Very Often

11. Quizzes provided immediate feedback with explanations.

Mark only one oval.

	1	2	3	4	5	
Nev	◯	◯	◯	◯	◯	Very Often

12. Reflection prompts were included after assignments.

Mark only one oval.

	1	2	3	4	5	
Nev	◯	◯	◯	◯	◯	Very Often

13. Automated reminders helped me track deadlines.

Mark only one oval.

	1	2	3	4	5	
Nev	◯	◯	◯	◯	◯	Very Often

14. Discussion forums encouraged peer interaction.

Mark only one oval.

	1	2	3	4	5	
Nev	◯	◯	◯	◯	◯	Very Often

15. Scaffolds were gradually reduced as I became more competent.

Mark only one oval.

	1	2	3	4	5	
Nev	◯	◯	◯	◯	◯	Very Often

Objective 2: Independent Learning Levels

Instruction: Indicate your level of agreement with the following statements.
Scale: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

16. I set clear learning goals for each week.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

17. I plan my study time effectively to complete tasks on time.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

18. I can break down complex tasks into smaller steps.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

19. I maintain a regular study schedule for this course.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

20. I monitor my understanding and adjust when needed.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

21. I search for additional resources when I don’t understand a topic.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

22. I ask questions or seek help when I face difficulties.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

23. I stay motivated even without reminders from the teacher.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

24. I continue working on tasks even when they are difficult.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

25. I feel confident using digital tools required for the course.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

Objective 3: Perceived Influence of Digital Scaffolding

Instruction: Indicate your agreement with the following statements.
Scale: 1 = Strongly disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly agree

26. Digital scaffolds helped me become more independent in learning.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

27. They improved my confidence to learn without teacher guidance.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

28. They reduced the time I spent feeling confused or stuck.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

29. They helped me monitor my progress effectively.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

30. They encouraged me to seek resources before asking for help.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

31. They motivated me to complete tasks on time.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

32. Gradual removal of scaffolds did not reduce my performance.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

33. They encouraged me to reflect on my learning strategies.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

34. They supported my ability to take responsibility for my own learning.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

35. I would prefer future courses to include similar scaffolding supports.

Mark only one oval.

	1	2	3	4	5	
Stro	◯	◯	◯	◯	◯	Strongly agree

Untitled section

Thank you very much for taking the time to answer this questionnaire. Your participation and honest responses are deeply appreciated. The information you provide will contribute meaningfully to understanding how digital scaffolding strategies can support independent learning among pre-university students. Your effort will help improve instructional design practices and benefit future learners.

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