

Supplementary Material S5: Faculty Observations and Improvement Priorities

Table S5 Frequency Analysis of Multiple- choice Questions (Q5, Q7, Q8, Q9)

Category	Content	Response %	Case %
Q5 Major Gains	Knowledge integration: ability to organise scattered knowledge into coherent pathophysiological narrative	26.7%	100.0%
	Narrative design: conscious use of narrative techniques (e.g., suspense, pacing)	20.0%	75.0%
	Logical construction: stronger logic in causal relationships and differential reasoning	16.7%	62.5%
	Active inquiry: stronger motivation to independently search literature and explore mechanisms	13.3%	50.0%
	Team collaboration: effective task division and consensus- building	10.0%	37.5%
	Critical reflection: prudent questions about existing plans or evidence	6.7%	25.0%
	Increased rigour and sense of responsibility toward medicine	6.7%	25.0%
Q7 Challenges	Difficulty in defining process- oriented evaluation criteria	20.0%	50.0%
	Lack of mature, replicable teaching examples, toolkits, or resource databases	15.0%	37.5%
	Fine- grained, personalised guidance requires substantial time and effort	15.0%	37.5%
	Students had difficulty shifting from “learning” to “creation”	15.0%	37.5%
	High demands on faculty's own	10.0%	25.0%

Category	Content	Response %	Case %
Q8 Improvement Priorities	case- design and facilitation skills		
	Limited class time for practice and feedback	10.0%	25.0%
	Students' insufficient prior knowledge or abilities	10.0%	25.0%
	A few students invested little effort in case creation and inter- group feedback	5.0%	12.5%
	Strengthen faculty support: collective lesson planning, teaching seminars, mentoring	25.0%	62.5%
	Enrich teaching resources: build high- quality exemplar library, resource database, toolkits	20.0%	50.0%
	Adjust course structure: optimise time allocation between theory and practice	15.0%	37.5%
	Clarify evaluation criteria: refine observation points and feedback rules for process- oriented assessment	15.0%	37.5%
	Optimise teaching processes: add dedicated workshop time for case analysis and logical framework review	10.0%	25.0%
	Promote faculty collaboration: enhance co- guidance between basic and clinical faculty	10.0%	25.0%
Q9 Recommendations for Future Instructors	Consider adding a second case- writing session in the second semester of Year 2	5.0%	12.5%
	Receive specific pedagogical training on how to guide case writing	26.3%	62.5%
	Accumulate rich experience in case- based teaching in clinical or basic sciences	26.3%	62.5%

Category	Content	Response %	Case %
	Be mentally prepared to invest substantial time in detailed and personalised guidance	21.1%	50.0%
	Join a teaching team with experienced faculty and adopt a mentoring model	15.8%	37.5%
	Personally complete the full case-creation process	5.3%	12.5%
	Study exemplary cases	5.3%	12.5%

Selected Open-ended Responses (Q6 and Q10)

Q6 – Typical student performance examples:

- “The expected shift was from ‘what is this disease’ to ‘how can I make the reader deduce the disease themselves’, but teacher guidance was still needed to prompt iterative deliberation.”
- “Students realised that a PBL case is not a simple accumulation of knowledge, but a teaching tool centred on problems, scenarios, and competency development. It should have a twist-and-turn story covering multiple conditions or complications—quite interesting, like writing a ‘script-kill’ (murder mystery) story.”
- “Critiquing others’ cases was also very interesting; everyone had different ideas and writing styles, no two were alike, and the class was enjoyable. The feedback we gave each other was very valuable.”

Q10 – Suggestions for course improvement:

- “Try to match specialists to their own disciplines; offering multiple options would facilitate more distinctive case creation.”
- “Creating a case from scratch is difficult and burdensome, especially during final exam revision. Rewriting/modifying existing cases might be more effective, but allowing students to choose their own cases could lead to large variations between groups. Providing an initial bank of cases for adaptation would be helpful.”
- “This is a very good practical opportunity, but it needs more mature design and reasonable planning—clearer operational guidelines and evaluation criteria for students, and a more structured implementation framework for instructors.”
- “An additional case-writing session could be scheduled in the second semester of Year 2; this course is very helpful for students to systematically organise and understand their knowledge system.”