Questionnaire 2: **Supporting Preservice Teachers to Noticing**

Universidad Nacional

Faculty of Exact and Natural Sciences-School of Mathematics

Dear student;

The purpose of this questionnaire is to gather information about reflection on teaching practices by future fifth-level mathematics teachers of the Bachelor's and Licentiate's Degree program in Mathematics Teaching at the Universidad Nacional. The information collected will be used for academic purposes.

Instructions

Based on your observation of the case presented, provide the information requested in detail.

Aspects observed

Epistemic Suitability

1. Are problems given which are mathematically incorrect? Which?

2. Are the definitions and procedures clearly addressed? Why?

3. Are there incorrect statements, or is the way they are presented incorrect? Which?

4. Are the explanations and proofs suitable for the students' educational level? Why?

5. Do you think that metaphors are used too often? Why?

6. Does the sequence of tasks allow the development of relevant skills in mathematics such as modeling, argumentation, problem solving, making connections, etc.? Which?

7. Does the sequence of tasks allow students to formulate their own problems? Which?

8. Is there an appropriate use of definitions, properties, procedures, etc., to introduce a new concept?

9. Are the problems used representative? Why?

10. Is the amount of problems presented representative? Why?

11. Are different modes of expression (verbal, graphic, symbolic) used and related to one or more partial meanings? Which?

12. Are different notations or ways of representing a meaning interpreted? Which?

Cognitive suitability

13. Do students have the prior knowledge necessary to study the topics presented? Why?

14. Do the intended meanings presented have a manageable level of difficulty? Explain

15. Is it possible to identify extension and reinforcement activities? Which?

16. Does the evaluation method identify understanding of the knowledge or competencies presented? How?

17. Are generalization, intra-mathematical connections, changes in representation, and conjecture included, among others? When?

18. Are metacognitive processes promoted? How?

Interactional Suitability

19. Does the teacher provide an adequate, clear and well organized presentation of the subject? Explain

20. Do you think there are times when the teacher speaks too fast? Which?

21. Does the teacher emphasize key concepts? Which?

22. Are conflicts in meanings among students recognized and resolved? Are students' silences, facial expressions, and questions correctly interpreted, and is an adequate set of questions and answers observed? Explain

23. Is an attempt made to reach consensus based on the best argument? Explain

24. Are different explanations and arguments used to involve and capture the attention of students? Explain

25. Are attempts made to include students in class dynamics rather than exclude them? Why?

26. Are dialogue and communication between students favored?

27. Is inclusion among peers favored and exclusion avoided?

28. Are there moments when students assume responsibility for studying, exploring, formulating and validating?

29. Do you think there is systematic observation of the students' cognitive progress?

Mediation suitability

30. Are manipulative and computer materials used to introduce situations, languages, procedures and arguments adapted to the meaning intended to be conveyed?

31. Does the number and distribution of students allow teaching the intended material? Why?

32. Is the course schedule appropriate? Why?

33. Do you consider that the classroom and the distribution of students are adequate for the development of the intended instructional process? Why?

34- Is the time available sufficient for teaching the intended meanings? Why?

35. Is sufficient time allowed to cover the most important contents of the subject? Why?

36. Is there an adequate investment of time for more difficult contents? What do you consider these contents to be?

Emotional suitability

37. Are the tasks selected interesting to students? Why?

38. Do the proposed situations allow an assessment of the usefulness of mathematics in everyday and professional life? Why?

39. Is student participation in activities promoted? Why?

40. Are student perseverance and responsibility promoted? Why?

41. Do students participate equally in argumentation? Are arguments judged in terms of their merits, and not in terms of who is making the argument?

42. Is self-esteem promoted, thus avoiding rejection or fear of mathematics? Explain.

43. Do you consider that the aesthetic aspects and precision of mathematics are emphasized?

Ecological suitability

44. Do contents, their implementation and evaluation comply with curricular guidelines?

45. Are the contents related to other mathematical contents or contents of other disciplines? Why?

45. Are contents consistent with the curriculum and are they useful for the student's insertion in society and in the labor market? Why?

46. Is educational innovation evident? For example, introducing new content, technological resources, forms of evaluation, classroom organization, etc.

Perception

1. Based on your experience as a participant in this study, do you consider it to be useful to include similar practices in the curriculum? Why?

Note: Adapted from Font, V. (2015). Guideline for the analysis and assessment of the didactical suitability of mathematics teaching and learning processes. Unpublished manuscript. Departamento de Didáctica de las CCEE y la Matemática, Universitat de Barcelona.