International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

Observation of General Physical Chemistry I Lessons Based on the Competency-Based Approach (CBA), in L1 LMD Classes at the National Pedagogical University (UPN) and At the University of Kinshasa (UNIKIN): Comparative and Interactionist Analysis

Dr. Evariste Boetsa[1], Pierre Ikolongo[2]

[1]Faculty of Science and Technology, Department of Chemistry, National Pedagogical Institute University, Kinshasa-DRC
[2]Professeur Dr. Jean, Faculty of Science and Technology, Department of Chemistry, National Pedagogical Institute University, Kinshasa-DRC

ABSTRACT

The thesis entitled " Observation of general physical chemistry I lessons based on the Competency-Based Approach in L1 LMD classes at UPN and UNIKIN: comparative and interactionist analysis " analyzes the implementation of the Competency-Based Approach (CBA) in the teaching of general physical chemistry I within the Bachelor-Master-Doctorate system , comparing teaching practices at the National Pedagogical University (UPN) and the University of Kinshasa (UNIKIN) from an interactionist perspective .

The study is based on direct observation of general physical chemistry I lessons and analysis of teacher-student interactions, drawing on constructivism , social interactionism , and Houssaye 's pedagogical triangle . The results showed that teachers at both universities provide quality teaching and create a climate conducive to learning.

Group A (UPN) is distinguished by its pedagogical resources, with teachers recognized as chemistry didacticians . However, the low complexity of the tasks and the partial co -construction of knowledge limit the optimal development of critical thinking and autonomy. The study concludes that the Competency-Based Approach (CBA) promotes active learning and student participation, but that its maximum potential requires contextualized, collaborative, and open-ended activities .

These findings provide a solid basis for improving teaching practices and designing training strategies adapted to the requirements of the Bachelor-Master-Doctorate (LMD) system in science education in general, and general physical chemistry I in particular.

Keywords: Interactionist approach, Competency-based approach (CBA), General physical chemistry I, Teacher-learner interaction, LMD, Lessons, Observation.

I. INTRODUCTION.

The doctoral thesis entitled " Observation of general physical chemistry I lessons based on the Competency-Based Approach in L1 LMD classes at UPN and UNIKIN: comparative and interactionist analysis " analyzes the implementation of the Competency-Based Approach (CBA) in the teaching of general physical chemistry I within the Bachelor-Master-Doctorate (LMD) system , comparing teaching practices at the National Pedagogical University (UPN) and the University of Kinshasa (UNIKIN) from an interactionist perspective .

The study is based on direct observation of general physical chemistry I lessons and analysis of teacher-student interactions, drawing on constructivism, social interactionism, and Houssaye 's pedagogical triangle . The results showed that teachers at both universities provide quality teaching and create a climate conducive to learning.

Group A (UPN) is distinguished by its educational resources, with teachers recognized as chemistry didactics specialists. However, the low complexity of the tasks and the partial co -construction of knowledge limit the optimal development of critical thinking and autonomy.

Hence, a central question emerges and will constitute our two research questions:

1. To what extent do the general physical chemistry I lessons given in L1 LMD classes based on the APC actually promote engagement, interaction and co -construction of knowledge?
2. How do teaching dynamics differ between institutional contexts: UPN and UNIKIN.

The following are the probable hypotheses arising from the two research questions:

1. The general physical chemistry I lessons given in L1 LMD classes, based on the APC, would promote high learner engagement and effective interactions with the teacher, but the co -construction of knowledge would remain partially developed.
2. The teaching dynamics could differ between the institutions: Group A (UPN) would show better use of resources and more effective teacher-learner interaction than Group B (UNIKIN), although the overall engagement of learners would remain satisfactory in both contexts.
3. Some gaps have been identified in the literature:
4. Few studies combine direct observation of general physical chemistry I lessons with comparative analysis in L1 LMD;
5. Most research remains descriptive and does not always employ a solid theoretical framework such as interactionism to explain the observed dynamics;
6. Contextual factors specific to African universities, such as limited resources and teacher training, are often under-explored;

In summary, the state of the question shows that, although the Competency-Based Approach (CBA) is recognized for its pedagogical potential, its effective application in the general physical chemistry I lessons of the LMD system, in the two university institutions, UPN and UNIKIN, is still partially documented.

The interactionist approach sheds light on this reality by analyzing observable practices, interactions, and the gaps between theory and practice. Some theoretical concepts related to this approach include:

I.2.1. Competence.

According to DE KETELE (1996), competence is an ordered set of abilities (activities) which are exercised on contents in a given category of situation to solve problems posed by it.

It is "an individual's ability to mobilize and integrate knowledge, skills, and attitudes into a coherent whole in order to effectively and spontaneously solve problems in real-life situations." Competence =

(objective × content × situation); Capacity = objective × content; Competence = capacity × situation; Capacity: knowledge, skills, attitudes.

I.2.2. Approach.

In science, it is a methodological approach to achieving a goal.

In didactics, it is an approach to achieve a goal (Perrenoud, 2008).

I.2.3. Comparative Approach.

This is an analytical method used in education that involves studying two or more practices or systems in order to identify their similarities, differences, and underlying logic. It is an approach that aims to compare educational contexts to better understand their functioning, their effects, and the factors that influence them. (C. ADICK, 2008).

I.2.4. Competency-Based Approach (CBA).

The Competency-Based Approach is a teaching method focused on developing skills that can be used in a given situation, rather than on the accumulation of theoretical knowledge.

It aims to enable the learner to mobilize a set of resources (knowledge, skills) to solve complex situations autonomously and effectively.

The main characteristics of the APC are:

a. Student-centered: the student is the active participant in their own learning.
b. Problem-based situations: skills are practiced in realistic contexts.
c. Active pedagogy: projects, group work (Perrenoud, 1998).

The Competency-Based Approach indicates that the teacher should teach using the Problem-Based Approach with the idea of quality. (NDANDULA, 2021).

I.2.5. LMD system (Bachelor's – Master's – Doctorate).

According to the AUF (2009), the LMD system is a model for organizing higher education based on three degrees: Bachelor's (3 years), Master's (2 years), and Doctorate (3 years). It aims to harmonize degrees internationally, particularly within the Francophone world.

I.2.6. Pedagogical constructivism.

Constructivism, developed by Jean Piaget and Lev Vygotsky , posits that learning is an active process of knowledge construction by the learner. This paradigm is central to the LMD system, as it encourages: learner autonomy; collaborative learning; and the resolution of real-world problems.

I.2.7. Lesson.

- A lesson is a structured teaching unit that allows a teacher to transmit knowledge, know-how, or a skill to a group of learners within a set time;
- In Pedagogy: a lesson is a teaching sequence aimed at achieving specific learning objectives, through organized content, active methods, and didactic means; (Altet , M. 1994).
- In didactics: a lesson is a planned implementation of disciplinary content, adapted to the level of the students, integrating a logical progression, examples, exercises and an evaluation; (Altet , 1994; Brousseau, G. 1998).
- A lesson serves to impart a new concept, to reinforce a skill or to assess knowledge; (Houssaye , J. 1998).

I.2.8 .Lesson design.

Teaching a lesson involves two activities carried out by the teacher: interactive and non-interactive. The latter takes place in two phases: the pre-interactive phase, or lesson preparation, during which the teacher makes a series of decisions regarding the lesson to be given, and the post-interactive phase, or assessment.

Lesson planning is the expression of a project of teaching activities to be carried out in a given classroom. Therefore, preparing a lesson means defining and structuring the material, that is, arranging and ordering its parts by numbering the titles and subtitles.

I.2.9. Observation.

The systematic observation of a lesson is what happens during a teaching sequence, with the aim of understanding, evaluating or improving teaching practices;

Lesson observation is a methodical approach to studying the behavior of the teacher, learners and pedagogical interactions during a lesson, in a real classroom setting; (Altet , 2001; Crahay , 2006; Kahn, S 2006).

In a lesson, one can observe: the course of the lesson; classroom management; the language and discourse of the teacher; the reactions and participation of the learners; the use of teaching materials; the clarity of instructions, feedback, evaluation.

I.2.10. General Physical Chemistry I.

General Physical Chemistry I is an introductory subject to physical chemistry that aims to provide learners with the necessary foundations to understand fundamental physical principles based on physical laws such as thermodynamics, gas laws, states of matter; and equilibrium conditions in chemical systems. (Atkins, P & de Paula, J, 2010).

II. METHODS AND TECHNIQUES.

II.1. Methods.

- **Data analysis:** The collected data is analyzed qualitatively , comparing observed practices with the principles of competency-based learning (CBL) and the interactionist framework. The analysis highlights: the strengths and limitations of teaching practices; institutional variations between UPN and UNIKIN; and avenues for improvement to strengthen engagement and the co -construction of knowledge.
- **Data collection instruments** : We used a pre-established observation grid and video.
- **Data collection process** : We made a direct observation of the lessons and we filmed these lessons.
- **Data processing and analysis plan** : We used a direct observation grid for the lessons, and video to film and record them. This observation grid included several sections: General information, the context of the observation, and numerical parameters from 1 to 5 for the evaluation. Based on these evaluations, we compared the results obtained in the two university institutions: UPN and UNIKIN **.**
- **Difficulty** : For the sake of fairness, all general physical chemistry I courses should have been taught by members of the academic staff. However, at the National Pedagogical University, it was taught by scientists in chemistry and biology. Therefore, we were forced to eliminate these two options at that university. We should also note the refusal to film the observation sessions at UNIKIN.

II.2. Techniques

- **Systematic observation** : Use of a pre-established observation grid evaluating: Learner engagement and participation; The quality of teacher-learner interactions; The co -construction of knowledge and the contextualization of tasks.
- **Field notes and recordings** : Documentation of verbal and non-verbal exchanges, allowing for detailed qualitative analysis.

III. RESULTS.

III.1. SUMMARY OF THE RESULTS OF TEACHERS IN GROUP A: UPN.

- TEACHER 1.
- Lesson topic: Nomenclature of inorganic chemical compounds
- Class: L1 LMD Medical Biology.
- *Specific objective.*

At the end of this lesson, learners should be able to name and correctly write the formula of a wide variety of inorganic compounds by independently applying the rules of nomenclature.

- ***Overall score: 54/65 or 8.3/10.***

This lesson demonstrates a very high level of quality, with effective engagement and interaction between the teacher and learners. The teaching resources are relevant, and remedial measures are in place.

- TEACHER 2.
- Subject: Chemical bonding.
- Class: L1 LMD Veterinary Medicine.
- Specific objective.

At the end of this lesson, learners should be able to name and correctly write the formula of a wide variety of inorganic compounds by independently applying the rules of nomenclature.

- **Overall score: 57 / 65 or 8.7 / 10.**

This lesson demonstrates a very high quality, with good classroom management, relevant use of resources, and effective interaction between the teacher and learners. The level of complexity of the problems could be slightly improved.

- TEACHER 3.
- Subject: Stoichiometry of chemical reactions.
- Class: L1 LMD Geography-Environment.
- Specific objective.

At the end of this lesson, students should be able to perform stoichiometric calculations to balance chemical equations and determine the quantities of reactants and products involved in a reaction.

- **Overall score: 57 / 65 or 8.7 / 10.**

This lesson demonstrates high quality, with good engagement, effective interaction, and appropriate teaching resources. The level of complexity of the problems could be improved to enrich learners' critical thinking skills.

Table 1: Summary Table of Overall UPN Grades.

Teacher	Score out of 65	Rating out of 10
1.	54	8.3
2.	57	8.7
3.	57	8.7
Average	56	8.6

The lessons observed in Group A: UPN demonstrated a high quality of teaching, with very satisfactory levels of student engagement and interaction. The teaching resources used were appropriate, and remedial measures were in place to support struggling students.

III.2. SUMMARY OF RESULTS OF TEACHERS IN GROUP B: UNIKN.

- TEACHER 4.
- Subject: Inorganic chemical reactions.
- Class: L1 LMD Chemistry.
- Specific objective.

At the end of this lesson, students should be able to describe and identify the different types of inorganic chemical reactions, as well as write and balance the corresponding equations.

- **Overall score: 55/65 or 8.5/10.**

This lesson demonstrated high-quality teaching, with good student engagement, effective interaction, and efficient use of teaching resources. The complexity of the problems was well-suited to the students' level, and the support provided to learners was particularly effective.

- TEACHER 5.
- Subject: Chemical functions and nomenclature.
- Class: L1 LMD Life Sciences-Biology.
- Specific objective.

At the end of this lesson, students should be able to recognize, name and classify the different chemical functions, as well as apply the rules of nomenclature to write the formulas of the associated compounds.

- **Overall score: 50/65 or 7.7/10.**

This lesson demonstrated satisfactory teaching quality, with good student engagement and effective interaction. However, active participation and the use of problem-solving strategies could be improved.

- TEACHER 6.
- Subject: Stoichiometric calculations.
- Class: L1 LMD Environment.
- Specific objective.

At the end of this lesson, students should be able to perform stoichiometric calculations to determine the amounts of reactants and products in inorganic chemical reactions, using the concepts of mole and molar mass.

- **Overall score: 51/65 or 7.8/10.**

This lesson demonstrated satisfactory teaching quality, with good learner engagement and clear explanations. However, peer collaboration and active participation could be improved.

Table 2: Summary Table of UNIKIN Overall Grades.

Teacher	Score out of 65	Rating out of 10
4.	55	8.5
5.	50	7.7
6.	51	7.8
Average	52	8

The observed General Chemistry I lessons in Group B (UNIKIN) showed a satisfactory overall quality of teaching, with varying levels of student engagement. Teachers used relevant teaching resources, but improvements can be made in terms of active participation and collaboration among students.

Table 3: Comparative Table of Groups A (UPN) and B (UNIKIN): with Means.

Teachers	**65**	**10**	**Learner Engagement**	**E-A interaction.**	**Use of educational resources**	**Problem solving and critical thinking**	**Remediation and support**
1.	54	8.3	13/15	18/20	7/10	12/15	4/5
2.	57	8.7	12/15	20/20	9/10	11/15	5/5
3.	57	8.7	12/15	20/20	9/10	11/15	5/5
Average Group A (UPN).	**56**	**8.5**	**12.3/15**	**19/20**	**8.3/10**	**11.3/15**	**4.7/5**
4.	55	8.5	12/15	18/20	8/10	12/15	5/5
5.	50	7.7	10/15	17/20	8/10	10/15	5/5
6.	51	7.8	9/15	17/20	8/10	12/15	5/5
Average Group B (UNIKIN)	**52**	**7.8**	**10.3/15**	**17.3/20**	**8/10**	**10.7/15**	**5/5**

Table 4: Paired t-test table.

Matched t test.					
Sem					
N	**3**				
Md	**-0.33333334**				
Df	**2**				
To	**2**				
P	**0.666652**				

Summary of observations: Group A demonstrated superior overall performance in terms of grades and learner engagement compared to **Group** B. Both groups have effective EA interaction and remediation measures, but Group A stands out for a more effective use of educational resources.

III.2.3. Statistical Analysis.

Matched t test.

- **Null hypothesis (H0)** :
- The null hypothesis states that there is no significant difference between the means of the two groups (UPN and UNIKIN) for the different assessment measures.
- **Group averages** :
- Average for Group A (UPN): 56 out of 65 (8.5 out of 10)
- Average score for Group B (UNIKIN): 52 out of 65 (7.8 out of 10)
- **Test statistics** :
- SEM (Standard Error of the Mean): 0.6667

- n (sample size): 3 (number of teachers in each group)
- md (average difference): -0.3333 (indicates that Group A is on average superior to Group B)
- df (degrees of freedom): 2
- to (calculated value of t): 2
- p (p-value): 0.6667
- **Interpretation of the p-value** :
- The p-value of 0.6667 is well above the classic significance threshold of 0.05. This indicates that the observed difference between the means of the two groups is not statistically significant.
- **Conclusion** :
- H0 is not rejected: This means that there is not enough evidence to conclude that there is a significant difference between the performance of the two groups (UPN and UNIKIN) in terms of grades and the different aspects assessed (engagement, interaction, teaching resources, etc.).
- Although Group A displayed higher averages, this difference is not large enough to be considered statistically significant.

The interpretation of all these results, according to the interactionist approach and by mobilizing Houssaye 's pedagogical triangle , the general physical chemistry I lessons observed in L1 LMD classes reveal a strong teacher-learner interaction and good transmission of knowledge , but a potential for improvement on the direct learner-knowledge relationship , through more complex, collaborative and contextualized activities.

1. Comparison between UPN and UNIKIN.

Teachers from two groups, UPN and UNIKIN, used highly relevant teaching resources during observed lessons in general physical chemistry I in L1 LMD classes . UPN teachers showed superior overall performance in terms of grades and learner engagement compared to those from UNIKIN; both groups have effective teacher-student interaction and remediation measures, but group A stands out for a more effective use of teaching resources.

Active participation, collaboration among learners, and varying levels of learner engagement were evident in both institutions. The analysis shows that while there is a tendency for Group A (UPN) to perform better than Group B (UNIKIN), this tendency does not translate into a statistically significant difference: the teachers in both groups, UPN and UNIKIN, therefore appear to have comparable results according to the criteria assessed.

IV. DISCUSSION OF RESULTS.

The analysis of the general physical chemistry I lessons, given in the L1 LMD classes at UPN (Group A) and UNIKIN (Group B), highlights teaching practices that are generally of good quality, with some variations between the two university teaching institutions.

The results reveal that, although teachers have mastered the subject matter and maintain a positive relationship with learners, the complexity of tasks and the co -construction of knowledge remain areas for improvement. The average scores obtained (Group A: 8.6/10; Group B: 7.8/10) indicate that teachers in both groups, A and B, deliver quality instruction.

The non-significant difference between the groups ($p = 0.6667$) suggests that, despite apparent differences in performance, the institutional effect on the perceived quality of teaching remains limited. Group A exhibits higher engagement (12.3/15) and slightly higher teacher-student interactions (19/20) than Group B (10.3/15 and 17.3/20).

According to **According to** Vygotsky's theory of social interactionism (1978), these differences are explained by the way in which educational activities stimulate active participation and critical thinking. Learner engagement is strengthened by social interactions, teacher mediation, and collaborative work, in line with Kimbuya 's observations (2023).

Both groups effectively utilize teaching resources and implement remedial measures. Group A, however, stands out for its more strategic use of teaching materials and more diverse activities. This observation is explained by the theory of pedagogical mediation , which posits that the teacher acts as a facilitator between knowledge and the learner, adjusting tasks and guiding learners to optimize learning.

Observation reveals that, in both groups, the tasks offered sometimes remain relatively simple, limiting the stimulation of critical thinking. According to **Houssaye 's pedagogical triangle (1988, 1993)** and **constructivism** (Piaget, 1970; Bruner, 1966), the learner-knowledge relationship is fully activated when the learner is involved in problem-solving situations, open-ended activities, etc.

Interactionist analysis, incorporating Houssaye 's pedagogical triangle , shows that teachers effectively transmit knowledge and create a climate conducive to learning, while learners actively participate. According to competency-based learning (**CBL)** and constructivism , the potential for improvement lies in the learner-knowledge relationship: implementing more complex, contextualized, and collaborative tasks would foster co - construction and autonomy. Pedagogical mediation remains a key factor in balancing learning and supporting learners in mastering skills.

CONCLUSION

The observed lessons in general physical chemistry I in L1 LMD reveal a high quality of teaching and a satisfactory level of student engagement.

However, to fully exploit the potential of the APC in the context of the LMD system, it is necessary to strengthen the complexity of tasks, the co -construction of knowledge and the autonomy of learners, in accordance with interactionist and constructivist principles.

The LMD system at UPN and UNIKIN, based on the competency-based approach (CBA), has made it possible to highlight the pedagogical and interactional dynamics within these university contexts.

The comparative and interactionist analysis of teaching practices revealed several key points:

- Firstly, the teachers at both institutions possess excellent mastery of the disciplinary content, ensuring a clear and structured transmission of scientific knowledge. This competence, combined with a facilitative teaching style and a positive relational climate, fosters learner engagement and active participation, key elements for effective learning according to the interactionist model.
- Secondly, despite these strengths, limitations appear, mainly in the complexity of the tasks proposed and in the co -construction of knowledge. The exercises often remain poorly contextualized and open-ended, which hinders the development of critical thinking, autonomy, and the ability of learners to solve complex problems collaboratively.
- Thirdly, the integration of problem-solving situations appears to be a relevant strategy for overcoming these limitations. By confronting learners with concrete, complex, and motivating challenges, this approach fosters peer collaboration, strengthens engagement, and stimulates the active acquisition of knowledge. It also allows for pedagogical flexibility, adapted to the specific needs of students, while facilitating a more comprehensive formative assessment.
- Houssaye 's pedagogical triangle and the Anthropological Theory of Didactics (TAD) shows that the balance between the axes, teacher ↔ knowledge, learner ↔ knowledge and teacher ↔ learner is

generally well respected.

However, to fully exploit the potential of the APC in the context of the LMD system, it is recommended to strengthen the complexity of tasks, contextualization and co -construction of knowledge, in order to further develop the autonomy, critical thinking and creativity of students.

In summary, this study demonstrates that the teaching of general physical chemistry I at UPN and UNIKIN is of high quality, but that its impact could be optimized by a systematic use of problem-based situations and teaching strategies that promote active engagement and collaborative knowledge building.

These results provide concrete avenues for the continuous improvement of teaching practices and for the promotion of truly skills-based learning in Congolese higher education.

RECOMMENDATIONS.

- **For teachers:** Design problem situations and open-ended exercises to stimulate critical thinking; Integrate concrete examples and contextualized case studies; Encourage the co -construction of knowledge and collaborative work; Promote learner autonomy and independent research.
- **For trainers and institutions:** Strengthen continuing teacher training in competency-based learning and interactive teaching methods; Provide diverse teaching resources adapted to the requirements of the LMD system; Ensure regular monitoring to support the application of competency-based learning.

LIMITS AND RESEARCH PERSPECTIVES.

This thesis, while highlighting the strengths and areas for improvement in teaching practices for General Physical Chemistry I at UPN and UNIKIN, has some limitations. The limited number of teachers observed and the relatively short period of direct observation of General Physical Chemistry I lessons restrict the generalizability of the results. Furthermore, the study focused primarily on analyzing teaching practices and teacher-student interaction, without directly measuring the long-term impact on student learning.

Finally, the qualitative evaluations of the lessons are based on fine and detailed observations, offering a rich overview of teaching practices, while remaining specific to the institutional context of these two universities, which limits their transposition .

These limitations open up several avenues for research. It would be relevant to broaden the sample to include a larger number of teachers and disciplines, to incorporate longitudinal observations to track the evolution of practices, and to more systematically assess the impact of teaching approaches on student performance and skills. The study could also be extended to other higher education institutions, both nationally and internationally, to compare practices and their impacts in different contexts.

Finally, exploring new teaching strategies, including the integration of digital tools and more complex and collaborative problem-solving situations, could enrich the teaching of general physical chemistry I and strengthen learners' autonomy and critical thinking.

BIBLIOGRAPHICAL REFERENCES.

1. S. Rahem , Didactics and pedagogy: keys to innovation in university teaching , Ziglobitha , vol. 05, no. 013, Mar. 2025. doi : 10.60632/ziglobitha.n013.10.vol.5.2025 .
2. P. Mukendi Tshipamba , 2025, Pedagogical approaches and their innovative teaching models applied to EDN-NC in the DRC , International Journal of Scientific Research, vol. 3, no. 6, pp. 7123–7140, Dec. 2025. doi : 10.5281/zenodo.17838753

3. D. Cyprian, P. Chikuvadze , M. Young, D. Daimond & C. Makuvire Claretah , 2025, Competence-Based Education Pedagogy and Its Infusion into Primary School Learning Activities : Experiences from Teachers in a Selected Cluster in Eswatini , Journal of Educational Research and Practice, vol. 3, no. 1, Mar. 2025. doi : 10.70376/jerp.v3i1.267
4. Amadou Diop , H. Cheneval -Armand & S. Mailles- Viard Metz , 2025, Innovative learning spaces: effective teaching practices and uses of the physical-material environment , International Journal of Technologies in University Pedagogy, vol. 22, no. 2, 2025. doi : 10.22363/2312-8631-2025-22-2
5. Alyokhina IG, AV Dushin et al. , 2025, On the development of didactic systems in the context of digital transformation of vocational education (part 1) , RUDN Journal of Informatization in Education, vol. 22, no. 1, 2025. doi : 10.22363/2312-8631-2025-22-1
6. AG Bermus , 2025, Professional identity of a teacher in the era of AI: Towards developing a research program , RUDN Journal of Informatization in Education, vol. 22, no. 4, 2025. doi : 10.22363/2312-8631-2025-22-4
7. R. Nurhayati , M. Jaya Nur & N. Zakira Syahrani , 2025, Isu-isu Gender dalam kurikulum pendidikan agama Islam , Pedagogy : Journal of Multidisciplinary Education, vol. 2, no. 2, Nov. 2025. doi : 10.61220/pedagogy.v2i2.269
8. Rizky A. Sulfianti , S. Aminah & Jamaluddin Jamaluddin , 2025, Efektivitas penggunaan flashcard dalam pengajaran kosakata , Pedagogy : Journal of Multidisciplinary Education, vol. 2, no. 2, Nov. 2025. doi : 10.61220/pedagogy.v2i2.265
9. M. Urva , J. Jamaluddin & R. Nurhayati , 2025, Implementasi pembelajaran berdiferensiasi dalam pendidikan agama Islam , Pedagogy : Journal of Multidisciplinary Education, vol. 2, no. 1, May 2025. doi : 10.61220/pedagogy.v2i1.253
10. **As** rini Asrini et al. , 2025, Penggunaan anagram games dalam pembelajaran kosakata , Pedagogy : Journal of Multidisciplinary Education, vol. 2, no. 1, May 2025. doi : 10.61220/pedagogy.v2i1.254