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Congruence Between Learning Objectives and General Psychology Exam Questions in the First Year of Secondary Schools in Lumumbaville

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Abstract

This research highlights the importance for teachers of tailoring assessments to learning objectives to improve student performance in the classroom. The results of this study reveal a significant alignment between learning objectives and general psychology exam questions in the first year of teacher training in secondary schools in Lumumbaville. Furthermore, this study provides information on the effectiveness of teaching and how students perceive their learning through appropriate evaluations. Communicating learning objectives during lessons not only clarifies student expectations but also increases their engagement and motivation to achieve optimal academic performance.

Keywords: Congruence; Learning Objectives; Exam Questions; Secondary Schools; Lumumbaville; General Psychology

1. Introduction

Nowadays, the congruence between exam questions and student learning outcomes is a pressing issue in the Democratic Republic of Congo (DRC), despite the official adoption of objective-based pedagogy in schools [4]. This pedagogical approach focuses on the clear definition of learning objectives and prepares for the implementation of assessments that are intended to be appropriate [1].

The congruence between learning objectives and assessments implies a close alignment between what is taught and what is assessed. The importance of this alignment ensures the validity and reliability of school assessments. According to Biggs [1], constructive alignment is essential to ensure coherence between learning objectives, teaching methods, and assessment modalities. Since the correspondence between learning objectives and exam questions is a priority for educational quality, Gauthier, Mellouki, Bissonnette and Richard [2] suggest a strong coherence between learning aims, planned and delivered instruction, and assessments.

According to the OECD [5], the harmonization of learning objectives and school assessments plays a crucial role in student success, especially in countries where schools face challenges related to the effectiveness of evaluation systems. Indeed, Congolese educational stakeholders, aware of the deterioration of their education system, should show greater interest in developing exam questions that objectively measure the level of knowledge mastery in the various disciplines taught at school.

On this subject, Kabamba [4] reveals that most teachers do not master the objectives, the subject, or even the assessment tool and do not know what the student should be able to accomplish to attest to their degree of success or failure; the main stages and requirements of a well-constructed examination are generally poorly understood; some exams or questions are set outside the subjects taught; the wording of certain exam questions is difficult to understand.

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However, it is also common for students' perception of the adequacy between what is taught and what is measured to be questioned. Do exams faithfully reflect the pedagogical objectives set by teachers? Are students able to establish the link between what is taught and what is assessed? These questions highlight the importance of gathering students' opinions on the congruence between their learning and the assessments they undergo. At this level, Jones' study [3] showed that the lack of concordance between learning objectives and assessments can lead to a decrease in student motivation and performance.

Given the above, we note that a large number of teachers seem to lose sight of the purpose of learning and, in their assessment methods, ask questions that have no links with the pedagogical objectives set beforehand. This indicates a possible lack of adequacy between pedagogical objectives and exam questions within the school institutions of Lumumbaville, hence the interest of this study.

In order to analyze the congruence between learning objectives and exam items in Lumumbaville, this study aims to answer the following main question: **what is the impact of aligning exam questions with learning objectives on student academic success in general psychology in Lumumbaville?**

From this main question arise the following secondary questions:

- How do students perceive the correspondence between the teaching received and the assessments they undergo?
- Do these students achieve good results in general psychology at the end of the school year?

We start from the main hypothesis that **the alignment of exam questions with learning objectives positively influences student academic success in first-year general psychology**.

From this main hypothesis derive the following secondary hypotheses:

- **H1**: First-year students perceive a significant link between the teaching received and the assessments they undergo in general psychology.
- **H2**: These students achieve good performance in general psychology at the end of the school year.

The objective of this article is to examine the congruence between learning objectives and exam questions in general psychology according to students' perceptions in secondary schools in Lumumbaville. This will involve analyzing whether the exam questions they undergo in this discipline effectively assess the skills and knowledge they are supposed to have acquired, and proposing recommendations to improve this congruence and, consequently, the quality of education in Lumumbaville.

2. Methodological framework of the research

2.1. Population and Sample

The population of this study consists of all students attending secondary schools located in Lumumbaville. From this population, a sample of 150 subjects was randomly selected, comprising 80 boys and 70 girls, all enrolled in the first year of teacher training and having taken the general psychology course during the school year.

2.2. Methodological Approach

In order to confirm or refute the hypotheses, a rigorous methodological approach was implemented. This approach includes the clear definition of the study objectives, the collection of relevant data, their in-depth analysis, and the formulation of conclusions based on concrete facts.

In this context, we used the questionnaire technique to collect the necessary information. The survey questionnaire allowed us to efficiently and systematically collect data relating to:

- students' perception of the communication of learning objectives by their teachers;
- their perception of the adequacy between the announced objectives and the exam questions;
- their academic results in general psychology at the end of the year.

2.3. Data Analysis Tools

During the processing of the questionnaire, we analyzed in detail the responses provided by the participants. This analysis involved calculating frequencies and percentages in order to present the results clearly and accessibly.

For hypothesis testing, we used the chi-square (χ^2) statistical test. The chi-square test is a statistical analysis method that assesses whether the differences between observed values and expected values are significant or not, based on categorical data. The significance level adopted is **$\alpha = 0.05$**.

3. Results of the study

Here we present an analytical presentation of the results obtained in the field. This presentation is made in the form of numbered, titled, and commented tables.

Table 1 Communication of Pedagogical Objectives to Students at the Time of Learning

Responses	Frequencies	Percentage (%)
Every day	30	20.0
Sometimes	75	50.0
Never	45	30.0
Total	**150**	**100.0**

The results in Table 01 indicate that only 20% of students report that teachers systematically announce the lesson objectives. Half of the students (50%) state that this only happens sometimes, while 30% of students emphasize that teachers never communicate the pedagogical objectives.

Table 2 Student Perception of Congruence Between Objectives and Exam Questions

Responses	Frequencies	Percentage (%)
Often	105	70.0
Sometimes	30	20.0
Never	15	10.0
Total	**150**	**100.0**

Table 02 shows that 70% of students often perceive a link between learning objectives and the assessment questions they undergo. 20% of students only observe this link sometimes, compared to 10% who never see a relationship between objectives and assessments.

Table 3 Distribution of Students According to Their End-of-Year Academic Performance

Responses	Frequencies	Percentage (%)
Good performance (≥ 60%)	96	64.0
Poor performance (< 60%)	54	36.0
Total	**150**	**100.0**

The results in Table 03 indicate that 64% of students achieved good performance (score ≥ 60%) in general psychology at the end of the school year, compared to 36% who achieved performance considered poor.

3.1. Verification of the Main Hypothesis

To verify the hypothesis that the alignment of exam questions with objectives influences academic success, we cross-tabulated the variables "perception of alignment" and "academic success".

- **H_0 (Null Hypothesis)**: There is no significant link between the perceived alignment of exam questions with learning objectives and student academic success.
- **H_a (Alternative Hypothesis)**: There is a significant link between the perceived alignment of exam questions with learning objectives and student academic success.

Table 4 Contingency Table (Observed Frequencies)

Academic Success	Perceived Alignment (Often)	Perceived Alignment (Rarely/Never)	Total
Success (≥ 60%)	85	11	**96**
Failure (< 60%)	20	34	**54**
Total	**105**	**45**	**150**

3.1.1. Calculation of Theoretical Frequencies (Expected)

Theoretical frequencies are calculated according to the formula:

$$E = \frac{\text{Row total} \times \text{Column total}}{\text{Grand total}} \quad (1)$$

- Cell (Success / Often aligned): E = (96 × 105) / 150 = **67.2**
- Cell (Success / Rarely aligned): E = (96 × 45) / 150 = **28.8**
- Cell (Failure / Often aligned): E = (54 × 105) / 150 = **37.8**
- Cell (Failure / Rarely aligned): E = (54 × 45) / 150 = **16.2**

Table 5 Comparison of Observed (O) and Theoretical (E) Frequencies

Cell	O	E	(O-E)	$(O-E)^2$	$(O-E)^2/E$
Success / Often aligned	85	67.2	17.8	316.84	**4.71**
Success / Rarely aligned	11	28.8	-17.8	316.84	**11.00**
Failure / Often aligned	20	37.8	-17.8	316.84	**8.38**
Failure / Rarely aligned	34	16.2	17.8	316.84	**19.56**
Total (χ^2 calculated)					**43.65**

3.2. Determination of the Critical Value

- Degrees of freedom (df) = (number of rows - 1) × (number of columns - 1) = (2-1) × (2-1) = **1**
- Significance level (α) = **0.05**
- Critical chi-square value (table) for df=1 and α=0.05 = **3.84**

3.3. Statistical Decision

The calculated chi-square (χ^2 = 43.65) is considerably higher than the critical value (3.84). We therefore reject the null hypothesis (H_0) and accept the alternative hypothesis (H_a).

Conclusion: There is a statistically very significant relationship between students' perception of the alignment of exams with objectives and their academic success. Students who perceive frequent alignment succeed significantly better than those who do not.

4. Discussion

The analysis of results and the validation of the research hypothesis call for several observations.

Firstly, the finding that only 20% of students benefit from systematic communication of pedagogical objectives (Table 01) reveals a significant gap in teaching practices in Lumumbaville [4]. This weakness in educational practice could hinder the achievement of optimal performance. Wiggins [7] emphasizes, however, that assessment must be aligned with pedagogical expectations. Clear communication of objectives at the beginning of the lesson allows students to better focus on the skills to be acquired, track their progress, and anticipate what will be assessed. The fact that 80% of students do not have this information systematically therefore constitutes a potential obstacle to their success.

Secondly, the perception by 70% of students of a significant link between objectives and exam questions (Table 02) is a positive point [1]. It indicates that the majority of students feel a certain coherence in the educational system. This feeling of coherence is essential to strengthen student confidence. However, the 30% who do not perceive this adequacy (20% sometimes + 10% never) constitute a significant proportion. This lack of perception can affect their motivation and engagement, as demonstrated by Jones [3].

Thirdly, the success rate of 64% (Table 03), although majority, leaves 36% of students in a situation of failure. This imbalance calls for reflection on the pedagogical approaches used and on the need to implement support mechanisms for these struggling students [2].

Finally, the statistical verification ($\chi^2 = 43.65 > 3.84$) very clearly confirms the existence of a link between perceived alignment of assessments and academic success. This result corroborates the work of Biggs [1] on constructive alignment. The author recommends that teachers always verify the adequacy between objectives and exam questions, because a lack of alignment is often the cause of poor results and a lack of learner engagement.

Our results also align with the thinking of Ruchard and Godlbout [6] who remind us that the design of assessment items must imperatively correspond to the pedagogical objectives set during learning.

However, it should be noted that the alignment of exam questions with pedagogical objectives is not the only factor in academic performance. Other variables, whether intrinsic (intelligence quotient, motivation, self-esteem) or extrinsic to the student (Pygmalion effect, peer influence, socio-economic conditions, parents' education level), can also condition academic success [5]. These factors were not examined in this study and could be the subject of further research.

5. Conclusion

The main objective of this research was to analyze the congruence between learning objectives and exam questions in general psychology according to the perception of first-year students in secondary schools in Lumumbaville.

To do this, we administered a questionnaire to 150 randomly selected students. The collected data were analyzed using percentages and the chi-square statistical test.

In light of the results, several conclusions emerge:

- The communication of pedagogical objectives remains insufficient in Lumumbaville schools, since only 20% of students benefit from it systematically.
- Despite this, a majority of students (70%) perceive a link between the announced objectives and the exam questions.
- The success rate in general psychology is 64%, leaving 36% of students in a situation of failure.
- **The main hypothesis is confirmed**: there is a statistically very significant relationship between the perceived alignment of assessments with objectives and academic success ($\chi^2 = 43.65 > 3.84$; $p < 0.001$). Students who perceive frequent alignment succeed significantly better than those who do not.

Consequently, systematic communication of pedagogical objectives and rigorous alignment of assessments with these objectives appear to be essential levers for improving academic success in Lumumbaville.

We recommend

- **To teachers**: systematically announce the objectives of each lesson at the beginning of the course and construct their assessments in perfect accordance with these objectives.
- **To school principals**: organize continuous training on the development of pedagogical objectives and the design of valid assessment tests.

- **To inspectors**: ensure compliance with the principle of pedagogical alignment during class visits and the validation of exams.
- **To researchers**: conduct further studies to identify other factors (socio-economic, cognitive, family) that explain the failure of 36% of students, in order to propose more targeted interventions.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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