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Design curriculum and skills techniques for managers of transportation at a higher education center, Lima 2025

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Abstract: It is essential to manage curriculum design and technical competencies for transportation managers in higher education centers. **Objective:** To analyze the dimensions of curriculum design for transportation managers. **Methodology:** 52 Peruvian university students were surveyed about curriculum design and technical competencies for transportation managers. **Results:** Approximately 43% strongly agree with the importance of curriculum design. 36% strongly agree with curriculum implementation, and 50% strongly agree with the analysis of assessment methods, considering it the most important option. **Contribution:** An optimal curriculum design influences technical competencies for transportation managers. **Conclusion:** The highest percentages corresponded to those who all agreed with the analysis of the implementation of curriculum designs to achieve technical competencies in transportation managers.

Keywords: Curriculum design, competencies, transportation managers

Diseño curricular y competencias técnicas para gestores de transportes en centro de formación superior, Lima 2025

Resumen: Es preponderante gestionar el diseño curricular y competencias técnicas para gestores de transporte en centros de formación superior. **Objetivo:** Analizar las dimensiones del diseño curricular para gestores de transporte. **Metodología:** 52 universitarios peruanos encuestados sobre el diseño curricular y competencias técnicas para gestores de transporte. **Resultados:** Aproximado el 43% está totalmente de acuerdo con la importancia del diseño curricular. Para la implementación del currículo el 36 % y para el análisis de los métodos de evaluación muestra que el 50%, considerándose que es la alternativa de mayor porcentaje. **Aporte:** Un óptimo diseño curricular, influye en las competencias técnicas para gestores de transporte. **Conclusión:** Los porcentajes mayores correspondieron a estar todos de acuerdo con el análisis de la implementación de diseños curriculares para lograr competencia técnicas en gestores de transporte.

Palabras clave: Diseño curricular, competencias, gestores de transportes

Desenho curricular e competências técnicas para gestores de transportes num centro de ensino superior, Lima 2025

Resumo: É essencial gerir o desenho curricular e as competências técnicas para os gestores de transportes nas instituições de ensino superior. **Objetivo:** Analisar as dimensões do desenho curricular para os gestores de transportes. **Metodologia:** Foram entrevistados 52 estudantes universitários peruanos sobre o desenho curricular e as competências técnicas para os gestores de transportes. **Resultados:** Aproximadamente 43% concordam fortemente com a importância do desenho curricular. 36% concordam fortemente com a implementação curricular e 50% concordam fortemente com a análise dos métodos de avaliação, considerando-a a opção mais importante. **Contributo:** Um desenho curricular ideal influencia as competências técnicas para os gestores de transportes. **Conclusão:** As percentagens mais elevadas corresponderam às que concordaram com a análise da implementação de desenhos curriculares para alcançar competências técnicas nos gestores de transportes.

Palavras-chave: Desenho curricular, competências, gestores de transportes

Conception de programmes et compétences techniques pour les gestionnaires des transports dans un centre d'enseignement supérieur, Lima 2025

Résumé : Il est essentiel de gérer la conception des programmes et les compétences techniques des gestionnaires des transports dans les établissements d'enseignement supérieur. **Objectif :** Analyser les dimensions de la conception des programmes pour les gestionnaires des transports. **Méthodologie :** 52 étudiants universitaires péruviens ont été interrogés sur la conception des programmes et les compétences techniques des gestionnaires des transports. **Résultats :** Environ 43 % sont tout à fait d'accord avec l'importance de la conception des programmes. 36 % sont tout à fait d'accord avec la mise en œuvre des programmes et 50 % sont tout à fait d'accord avec l'analyse des méthodes d'évaluation, la considérant comme l'option la plus importante. **Contribution :** Une conception optimale des programmes influence les compétences techniques des gestionnaires des transports. **Conclusion :** Les pourcentages les plus élevés correspondent à ceux qui sont tous d'accord avec l'analyse de la mise en œuvre des conceptions des programmes pour acquérir les compétences techniques des gestionnaires des transports.

Mots-clés : Conception des programmes, compétences, gestionnaires des transports



1. Introduction

University education faces multiple challenges, such as diversity in Educational offerings, labor market demands, and the need to meet quality standards. It is essential that he design curriculum for he approach by skills, especially in the training of Transport managers, integrating both technical skills (logistics, international regulations, technologies) and soft skills (problem-solving, leadership, adaptability). The curriculum should be flexible and incorporate trends such as electric mobility, aligning with the Objectives. of Development Sustainable (SDGs) 04) for guarantee a education accessible and of quality that breaks cycles of poverty. In addition, the use of artificial intelligence is suggested to ensure accreditations and efficient follow-up of graduates, thus contributing to the training of professionals aligned with the demands of the sector and to the reduction of gaps in educational quality.

The challenges in the management and policies of the education university in Peru require raise the Quality, equity, and relevance of the system through an integrated regulatory framework, with institutions that maintain adequate standards and are aligned with current contexts. This implies strengthening the role of SINEACE in the accreditation, offer information clear to the students and promote the integration of universities, society and companies through policies that balance access and quality (Castro et al., 2012). The COVID-19 pandemic exacerbated educational inequalities, especially in institutions with limited digital resources and psychosocial support (World Bank, 2022; ECLAC, 2022). In Ecuador, the transition to the education virtual showed shortcomings in management institutional, such as the lack of infrastructure and sustainable student welfare policies (National Assembly, 2018). A weigh of the Law University No. 30220, some universities, as the UNL, no they have able to handle properly he stress academic and the desertion (Durán, 2022; Threshing and to the. 2011). Studies in Latin America indicate that welfare services are fragmented and lack comprehensive approaches, which underscores the need to transform institutional management into a proactive mechanism that guarantees student well-being, especially in public universities with limited resources (Rivera, 2021; Ruiz Muñoz and Oliver Ortiz Flores, 2018).

Public university management in Latin America faces serious challenges, including low execution rates. budgetary by lack of support state (20% in governments regional Peruvians in 2019), institutional rigidities and Gaps in educational quality, exacerbated by virtual learning (Hodges et al. 2020; López & Ortún , 2022). Furthermore, there is a tension between centralized models and demand. Citizen participation, along with pressure to adopt global standards, affects education by replicating practices from other countries without adaptation (Bernate et al. 2024; Montenegro & Altamirano, 2024). Countries like the United Kingdom and the United States demonstrate that educational efficiency requires autonomy and surrender of accounts, while in the region prevail models fragmented systems that prioritize spending over impact (Breaugh et al., 2023; Pandey et al., 2022). The results-based management approach, grounded in New Public Managerialism, seeks to overcome these limitations through integrated planning and evaluation systems (Lu et al., 2022). This approach HE base in synergies between it administrative and it academic, with metrics that go further there of the quantitative (Corley) and to the. 2021 ,Salas , 2018), and authors as Martinez (2007) and Oseda and to the. (2020) emphasize that competitiveness requires innovations in teacher assessment and adaptation to markets global, without forget the importance of models participatory that legitimize the management before the university community.

Labraña's Theory of Social Systems (TSS) It emerges as a response to the theoretical and methodological crisis of sociology in late capitalism, proposing a flexible and provisional " supertheory ". that does not seek absolute truths, but tools for understand the complexity social (Labraña 2014). Unlike traditional theories, TSS adopts a transdisciplinary and polycentric approach, reinterpreting concepts such as social action and interactionism through a systemic framework that demystifies theoretical dichotomies and reconstructs the relationship between action and structure (Farmland) 2014). Distinguishing between systems social, that are self-referential and



Based on communication and psychic systems, Labraña argues that these are cultural constructs that reduce complexity through internal distinctions, thus proposing an epistemological shift. regard to the theory general of systems classic focused in entities physical. His Its value lies in its ability to address contemporary social dynamics without reductionism.

The competency-based curriculum approach in Higher Education allows for the creation of academic programs that they respond to the skills defendants by he market labor, as it demonstrates the revision systematic of studies (2019-2023) carried out through he method PRISM, that This study identified 30 relevant works (Saravia et al., 2024). Graduate employability is becoming a priority for institutions, as they must train competent leaders adapted to a changing work environment, which implies updating curricula to improve job placement (García-Álvarez et al., 2022). Employability encompasses various dimensions, such as human and social capital, as well as adaptability (Clarke). Furthermore, engineering education plays a crucial role in social and industrial development, requiring the training of future engineers with competencies beyond the purely technical. Although elements exist to transform engineering education, they are often addressed in isolation. Therefore, this study proposes revisions and practical recommendations focused on the competency-based model applied to Industrial and Management Engineering (Pacher et al., 2022).

2. Methodology

The information used to prepare the article was selected according to the curriculum design and the skills techniques required for managers of transport in centers of training higher in Lima, during the year 2025, proposing a questionnaire based on the dimensions of the research of Castillo et al. (2024), prior validation of the survey was through judgment of three experts in experiences curricular linked to the variables that included the investigation, HE applied with he end of improve the relevance of the questions, such that contain the ideas raised via form *Google form* , and HE they obtained results of the students that they had provision To answer the survey, a quantitative-descriptive approach was applied to a sample of 52 university students from a Peruvian university (considering all alternatives with the same score) regarding the opinion on the curriculum design and technical skills for transport managers in higher education centers.

The survey consisted of 14 questions; some of the questions were phrased in the affirmative. and other negative, for avoid he bias to the be answered; for each a of they was Five alternatives were presented, some with an affirmative direction, others with a negative one, by including the word "no" in their formulation to avoid bias in the response to the respective survey, for which the following alternatives were used:

- TD = Completely in disagreement
- D = In disagreement
- I = Indifferent
- TO = OK
- TA = Completely OK

He analysis of the results HE did of agreement to three dimensions: Design, Implementation and Evaluation obtained from the research of Castillo et al. (2024)

Ask	Alternatives
1. Do you consider that he design curriculum NO this aligned with the skills techniques for he academic development of students?	TD • D • Yo • TO • TA
2. Do you consider that the goals of the design curriculum are immeasurable in relationship with the skills to develop?	TD • D • Yo • TO • TA
3. Do you consider that HE must incorporate designs curricular that facilitate he development of skills to The students?	TD • D • Yo • TO • TA



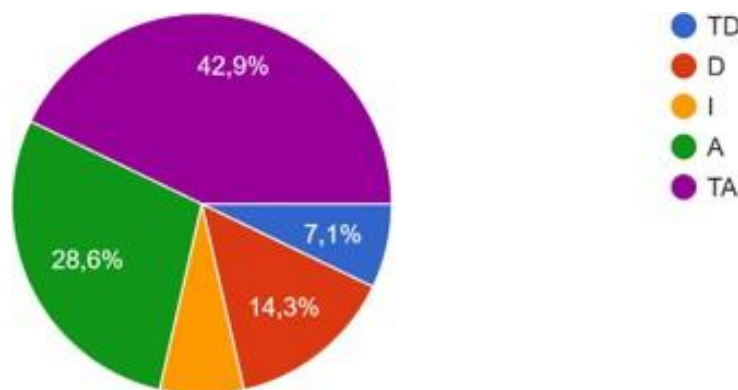
Ask	Alternatives
4. Do you consider that he design curriculum allows progression consistent in he development of the academic skills ?	TD • D • Yo • TO • TA
5. Do you consider that he design curriculum ha been updated only to the demands academics?	TD • D • Yo • TO • TA
6. Do you consider that the teachers use a design curriculum appropriate for promote only he development of technical skills?	TD • D • Yo • TO • TA
7. Do you consider that only the resources digital educational are enough for support he development of academic skills ?	TD • D • Yo • TO • TA
8. Do you consider that the students No have opportunities for apply the skills techniques in real-life situations ?	TD • D • Yo • TO • TA
9. Do you consider that he design curriculum NO promotes the active participation of the students?	TD • D • Yo • TO • TA
10. Do you consider that tutorials exist taught by the teachers of the university that are outdated?	TD • D • Yo • TO • TA
11. Do you consider that during the years 2020 to the 2025 the Sunedu supervises policies transcendental in the Peruvian higher education?	TD • D • Yo • TO • TA
12. Do you consider that the assessment NO consider the progress of the student in it achievement of skills?	TD • D • Yo • TO • TA
13. Do you consider that the assessment promotes partially the improvement continues in The students?	TD • D • Yo • TO • TA
14. Do you consider that the assessment NO is relevant for improve the quality of the design curriculum?	TD • D • Yo • TO • TA

3. Results

The results presented are in function to the answers ready of agreement to each a of the three dimensions: Design, Implementation and Evaluation

Figure 1

Dimension 01: Design

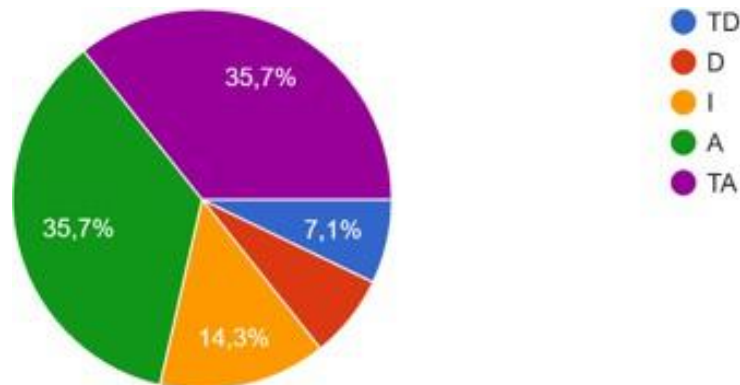


Approximately 43% strongly agree with the importance of curriculum design, demonstrating adequate alignment with labor market demands in areas such as logistics and international regulations, although gaps persist in emerging skills such as electric mobility and artificial intelligence. Analysis of curriculum implementation reveals that approximately 36% strongly agree. Analysis of assessment methods shows that 50% of students strongly agree, making it the most popular option despite its application by teachers. It is recommended to specify indicators for transversal competencies and improve flexibility. curriculum in view of changes technological and regulatory, and strengthen projects

interdisciplinary. The main challenge identified is the slow updating of the curriculum in the face of global trends, which highlights the importance of periodic reviews with stakeholders in the sector.

Figure 2

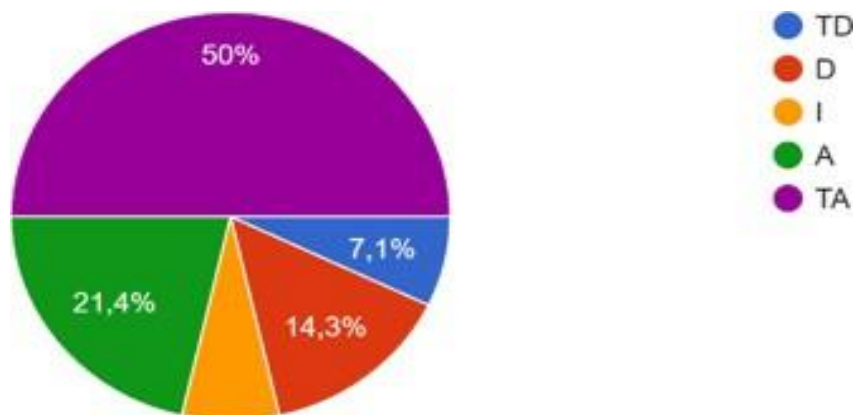
Dimension 2: Implementation



He analysis of the implementation reveals that approximately 36% express full agreement; however, despite its application by teachers, there is methodological diversity that reflects the need for training. in pedagogies active. HE identify limitations in resources educational, especially in infrastructure technology and materials updated, aggravated in he context post-pandemic . Professional internships are insufficient, so strengthening ties with the business sector is recommended. While self-directed learning is encouraged, it is suggested that it be complemented with collaborative strategies, gamification, and tutoring, proposing a comprehensive model with mentoring for more contextualized and relevant training.

Figure 3

Dimension 03: Evaluation



He analysis of the methods of assessment sample that he 50% of the students consider that They are totally of agreement, considering that is the alternative of elderly percentage, Yeah good HE measures

While theoretical knowledge is adequately assessed, there are limitations in evaluating practical skills. Incorporating competency-based rubrics and digital portfolios is recommended. Feedback is

useful, but little translates into individual improvement plans. Although there is progressive assessment, it lacks alignment with international standards, affecting its comparability. Students value their advances, but they request further options of re-evaluation. Finally, although the Results are used for curriculum adjustments; the process is bureaucratic and slow, making it difficult to implement timely improvements (Hodges et al. 2020).

4. Discussion:

The findings reveal a paradox: although the curriculum has a solid structure (Saravia et al., 2024), persist empty in the incorporation of skills emerging (AI, mobility electrical). This reflects the tension raised by Labraña (2014) between the autopoiesis of educational systems and his bond with environments changing. His theory sample as the rigidity of the curriculum, to the continue internal logics, difficult his adaptation to transformations external as the SDGs either the Industry 4.0 (García-Álvarez et al., 2022). By it, HE does necessary a "disturbance controlled" through the inclusion of employers (Bernate et al. 2024), which allows the education system to reduce complexity without compromising its internal coherence.

The uneven application of the curriculum reveals deficiencies in results-oriented management (Lu et al. 2022). Although the design promotes competencies, its implementation is limited by: 1) a lack of resources (ECLAC, 2022), and 2) insufficient teacher training in active learning methodologies. This exacerbates inequalities, since—according to the World Bank (2022)—the post-pandemic digital divide has deepened inequities. The Peruvian case (Hodges et al. 2020) demonstrates that, without investment in technology and training teacher, even the designs More advanced curricula fail in In practice, the managerial approach proposes linking the budget to concrete results, such as employability.

Theoretical-focused assessment contradicts the principle of "constructive alignment" (Corley et al. 2021), which demands coherence between methods and indicators and the stated competencies. The slowness of adjustments (Hodges et al. 2020) illustrates how universities, as Labraña indicates, prioritize stability over adaptation. However, experiences such as that of the United Kingdom (Pandey) and to the., 2022) show that systems of assessment agile, with rubrics and briefcase Digital systems can strike a balance between quality and flexibility. This raises a dilemma: how to maintain standards (e.g., SINEACE) while innovating in assessment? One possible solution lies in hybrid models that combine regulatory frameworks with pilot projects for assessment innovation.

5. Conclusions

The curriculum design has a solid structural foundation. The analysis of the assessment methods shows that he 50% of the students consider that are completely of agreement, considering that is the alternative of elderly percentage. Is clue establish mechanisms formal and systematic curriculum update with the active participation of external actors, such as companies and trade associations, in order to ensure that training responds to the demands of the labor market and the advances of the sector.

The implementation of the curriculum faces three main challenges: a lack of resources, particularly in technology and teacher training, which requires investments in digital infrastructure and professional development; a lack of connection with the labor sector, which demands strategic alliances to facilitate applied practices and projects; and the need for Strengthen support for students through personalized tutoring and psychosocial programs, especially in the wake of the pandemic. For tackle these challenges, is fundamental use tools innovative as simulations and real-world projects to assess skills, develop digital platforms that provide feedback and individualized monitoring, and establish flexible mechanisms that allow for evidence-based curriculum adjustments, thus improving comprehensive assessment and continuity of learning.

Finally, HE highlights that the challenge not It's purely educational, but also of governance. Of

According to Systems Theory, university management should function as a nervous system that articulates design, implementation and evaluation, using data to close gaps - such as those of employability and training - without losing its academic identity.

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 Juana Luz Flores Peña (25%): Drafting – draft original, Drafting – revision
 Tania Midori Guevara Anaya (25%): Validation, Visualization, Resources. Randall

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