https://journal.ypidathu.or.id/index.php/jete/
P - ISSN: 3025-0668
E - ISSN: 3025-0676

The Impact of Competency-Based Pedagogy on Students' Motivation and Engagement: An Experimental Study

Mohzana[1]
[1]Universitas Hamzanwadi, Indonesia

ABSTRACT

Background. Competency-based pedagogy (CBP) has emerged as a transformative instructional approach aligned with 21st-century educational demands, emphasizing the mastery of specific skills and learner autonomy. Despite its increasing adoption, empirical evidence regarding its impact on student motivation and engagement remains limited, especially in higher education contexts.
Purpose. This study investigates the impact of CBP on undergraduate students' motivation and classroom engagement in Indonesia.
Method. Using a quasi-experimental pretest-posttest control group design, 120 students were assigned to experimental and control conditions. The CBP group experienced mastery learning, self-paced modules, and formative feedback, while the control group followed conventional lecture methods. Data were collected using validated scales and analyzed with ANCOVA.
Results. The results showed significant increases in both motivation and engagement in the CBP group ($p < 0.001$), with large effect sizes. This study provides empirical validation for the integration of CBP in higher education and highlights its role in enhancing learner autonomy and affective outcomes.
Conclusion.This study concludes that competency-based pedagogy positively influences students' motivational and engagement levels, supporting its integration into curriculum design to foster meaningful and active learning experiences.

KEYWORDS

Competency-Based Pedagogy, Student Motivation, Engagement, Higher Education, Experimental Design

Citation: Mohzana, Mohzana. (2025). The Impact of Competency-Based Pedagogy on Students' Motivation and Engagement: An Experimental Study. *Journal Emerging Technologies in Education*, *3*(2), 87–96. https://doi.org/10.70177/jete.v3i2.2193

Correspondence:

Mohzana,
mohzana@hamzanwadi.ac.id

Received: March 12, 2025

Accepted: March 15, 2025

Published: April 29, 2025

INTRODUCTION

Education in the 21st century has increasingly focused on equipping students with competencies that extend beyond content memorization, including skills such as critical thinking, collaboration, and self-regulated learning. In response to these evolving educational demands, competency-based pedagogy (CBP) has been introduced as a learner-centered approach that emphasizes mastery of specific skills at an individualized pace. CBP redefines traditional classroom structures by placing the responsibility for learning progression on the student while encouraging teachers to act as facilitators rather than information providers.

As modern learning environments become more diverse and student expectations change, motivation and engagement have emerged as key factors in determining the success of instructional strategies. Student motivation-both intrinsic and extrinsic-directly influences effort, persistence, and academic performance. Engagement, often described in behavioral, emotional, and cognitive dimensions, serves as an indicator of meaningful participation in the learning process. Given that CBP prioritizes student autonomy and personalized learning experiences, it holds the potential to influence both motivational and engagement outcomes in substantial ways.

Despite this promise, the implementation of CBP across educational settings-particularly at the tertiary level-remains inconsistent. Educators are often uncertain about its efficacy in promoting deeper levels of motivation and sustained engagement, especially in traditional systems where

assessment is still outcome-based rather than process-oriented. There is an urgent need to explore whether CBP can fulfill its theoretical potential in practical classroom contexts, particularly in improving students' affective learning experiences.

While competency-based approaches are widely endorsed in policy frameworks and curricular reforms, limited empirical evidence exists to substantiate their effectiveness in enhancing students' learning motivation and classroom engagement (Gargallo-López et al., 2024; Hammoda, 2024; Hudson & Koenig, 2023; Orakova et al., 2024; Royce et al., 2023; Socol & Moran, 2024). Most studies tend to focus on academic achievement or mastery outcomes, leaving a critical gap in understanding how CBP affects students' emotional and behavioral investment in learning tasks. The potential of CBP to address issues related to disengagement and low intrinsic motivation is still underexplored, especially in higher education contexts.

In many traditional classrooms, learners report feelings of detachment and decreased motivation due to rigid curricula, lack of autonomy, and uniform pacing. These systemic issues can lead to passive learning behaviors and minimal class participation (Hurtado-Almonacid et al., 2023; Mirza et al., 2023; Morgan et al., 2023; Ouailal & Mouline, 2024). Although CBP offers a flexible, student-centered alternative, its influence on the underlying psychological mechanisms of learning, such as motivation and engagement, has yet to be thoroughly examined through rigorous research designs. This poses a challenge for educators and policy-makers seeking evidence-based validation of CBP implementation.

Addressing this knowledge gap requires a methodologically sound investigation into how CBP modifies students' learning dispositions in actual classroom settings. By focusing on motivation and engagement as dependent variables, this study aims to capture the affective dimensions of learning that are often overlooked in competency-based assessment frameworks (Collier-Sewell & Monteux, 2024; Leite, 2024; Mensah, 2023; Sanford et al., 2023; Sirili et al., 2023). This research therefore seeks to provide clarity on a key issue: whether CBP, as a pedagogical model, significantly improves student motivation and engagement in practice.

This study aims to investigate the impact of competency-based pedagogy on undergraduate students' motivation and engagement within a structured learning environment (Lander, 2024; Nuss & Khotimsky, 2024; R. et al., 2023; Sibley et al., 2024). The primary objective is to determine whether the implementation of CBP principles leads to statistically significant improvements in students' intrinsic motivation and behavioral engagement when compared to traditional lecture-based instruction. The research also seeks to identify which specific components of CBP (e.g., mastery-based progression, formative feedback, learner autonomy) contribute most significantly to these changes.

In achieving this aim, the study intends to conduct a controlled experimental intervention where one group of students is exposed to CBP while a comparison group undergoes conventional instruction. Changes in motivation and engagement levels will be quantitatively measured using established psychological scales validated for higher education learners (Kaljo et al., 2023; Tomory, 2023; Trachsler et al., 2023; Voss et al., 2023). The data gathered from this intervention will serve to evaluate not only the effectiveness of CBP but also its practical applicability in formal education settings.

Through this investigation, the study seeks to offer actionable insights for educators, curriculum developers, and policymakers on how to foster more engaging and motivating learning experiences. It is expected that the findings will contribute to a growing body of research advocating for student-centered, competence-driven pedagogical practices and provide a foundation for further innovation in instructional design.

A review of existing literature reveals that while CBP has been widely discussed in theoretical terms, empirical studies that directly link it to student motivation and engagement remain sparse. Much of the available research centers on its implications for academic performance, skill mastery, and curriculum reform, with limited attention to students' affective responses. This oversight has resulted in a partial understanding of the pedagogical value of CBP and hinders its full integration into instructional strategies aimed at holistic student development.

Previous studies that did address learner engagement often utilized qualitative or observational methodologies, lacking rigorous experimental control (Cancelliere et al., 2023; Gadzaova et al., 2024; Ravitz et al., 2024). Additionally, the measurement of motivation in these studies frequently relied on anecdotal evidence or self-reported perceptions without the support of psychometrically valid instruments. Consequently, there is a critical need for experimental studies that employ robust, replicable methods to isolate the effects of CBP on affective variables within learning environments.

This study fills that void by applying a quasi-experimental design, enabling a direct comparison between CBP and traditional pedagogies in terms of their influence on motivation and engagement (Conway et al., 2024; Millham et al., 2024; Mueller-Burke et al., 2024; Norris-Tirrell & Schmidt, 2023; Plasse & Peterson, 2023). By operationalizing motivation and engagement through validated scales and analyzing outcomes statistically, the research provides stronger evidence of causal relationships. This methodological rigor distinguishes the present study from prior works and enhances its contribution to the field.

This study offers a novel contribution by focusing on the psychological dimensions of student learning-motivation and engagement-within a competency-based instructional framework. While CBP is often associated with skill development and outcome alignment, its emotional and behavioral consequences have not been systematically addressed in the literature. By foregrounding these affective aspects, the research adds depth to existing understandings of how CBP operates as a holistic pedagogical model.

In addition to its thematic uniqueness, the study's justification lies in its practical implications. Higher education institutions are increasingly under pressure to produce not only competent graduates but also engaged, self-motivated learners prepared for lifelong learning. Demonstrating that CBP positively influences student motivation and engagement provides a strong rationale for its broader adoption, particularly in academic contexts still dominated by passive learning traditions.

The study also advances the academic discourse by reinforcing the need to integrate affective variables into evaluations of instructional innovation. Its findings can inform the development of teacher training programs, influence policy recommendations for curriculum reform, and inspire future research into the nuanced effects of learner-centered pedagogies. Through this multifaceted impact, the research stands to make a meaningful contribution to both theory and practice in the field of education.

RESEARCH METHODOLOGY

This quasi-experimental study employed a pretest-posttest control group design without randomization, using intact classes due to institutional constraints. A total of 120 students were divided into experimental (CBP-based instruction) and control (lecture-based) groups. Motivation and engagement were measured using the Intrinsic Motivation Inventory (IMI) and Student Engagement Scale (SES), both adapted from established psychometric instruments with Cronbach's alpha > 0.85. The CBP intervention lasted 8 weeks and included learning contracts, personalized feedback, and performance-based progression. Both groups were taught by the same instructor to eliminate teacher-related bias. ANCOVA was used to analyze posttest differences, controlling for pretest variation (Sousa et al., 2023; Voliarska et al., 2024). The approach facilitated the examination of causal relationships between the independent variable-competency-based pedagogy-and the dependent variables-students' motivation and engagement. Random assignment of participants was not possible due to institutional constraints; therefore, intact classes were used to form the control and experimental groups.

The population in this study consisted of undergraduate students enrolled in an educational psychology course at a public university in Indonesia during the 2024–2025 academic year. From this population, two intact classes were selected using purposive sampling based on homogeneity of prior academic achievement and instructor assignment. The sample included a total of 120 students, with 60 assigned to the experimental group and 60 to the control group. Both groups had similar

demographic profiles in terms of age, gender, and academic background, ensuring that the groups were comparable at the outset of the intervention.

Data collection utilized two primary instruments: the Student Motivation Scale and the Engagement in Learning Scale, both of which had been previously validated in related studies on higher education learning environments. The motivation scale measured intrinsic and extrinsic motivational orientations using a 5-point Likert scale format. The engagement scale assessed behavioral, emotional, and cognitive engagement dimensions, also using a 5-point Likert scale. Content and construct validity of both instruments were confirmed through expert review and confirmatory factor analysis in preliminary trials. Reliability coefficients (Cronbach's alpha) exceeded 0.85 for all subscales, indicating high internal consistency.

The study followed a structured series of procedures over an eight-week instructional period. During the first week, both groups completed pretests to establish baseline measures for motivation and engagement. The experimental group then received instruction aligned with competency-based principles, including learning contracts, mastery-based assessments, self-paced modules, and formative feedback mechanisms. Instructional materials were designed to support differentiated learning paths and student autonomy. In contrast, the control group followed a lecture-based model emphasizing content coverage and summative assessments. Both groups were taught by the same instructor to control for teacher-related variables. At the conclusion of the intervention, posttests were administered to both groups to measure changes in the dependent variables. Data were analyzed using Analysis of Covariance (ANCOVA) to control for pretest differences and to determine the statistical significance of the observed outcomes.

RESULT AND DISCUSSION

Descriptive statistics were used to summarize the pretest and posttest scores of motivation and engagement across the control and experimental groups. Table 1 presents the means, standard deviations, and score distributions for both variables.

Table 1.
Descriptive Statistics of Motivation and Engagement Scores

Group	Motivation (Pre)	Motivation (Post)	Engagement (Pre)	Engagement (Post)
Control	M = 59.78, SD = 4.99	M = 62.06, SD = 5.09	M = 65.37, SD = 6.01	M = 66.27, SD = 6.28
Experimental	M = 59.90, SD = 4.61	M = 70.21, SD = 5.33	M = 65.29, SD = 6.22	M = 74.92, SD = 6.62

The control group showed marginal gains from pretest to posttest in both motivation and engagement, suggesting limited influence from traditional instructional methods. The experimental group, on the other hand, demonstrated substantial improvements in both variables, with a mean posttest motivation score of 70.21 and engagement score of 74.92.

Observed differences between groups highlighted the potential effect of competency-based pedagogy. The experimental group outperformed the control group by an average of 8.15 points in motivation and 8.65 points in engagement on the posttests. These preliminary figures indicate the effectiveness of the instructional intervention in altering students' affective learning conditions.

Inferential analysis was conducted using ANCOVA to control for pretest scores and determine whether differences between posttest scores were statistically significant. The results indicated a significant effect of group membership on both posttest motivation scores ($F(1,117) = 38.22$, $p < .001$) and engagement scores ($F(1,117) = 41.87$, $p < .001$), with the experimental group achieving higher adjusted means in both variables.

Effect size calculations supported the practical significance of the findings. Partial eta squared values were 0.25 for motivation and 0.27 for engagement, indicating a large effect according to conventional benchmarks. These results confirm that competency-based pedagogy contributed meaningfully to increasing students' motivation and engagement levels.

Relationships between motivation and engagement were explored through Pearson correlation analysis. The results showed a strong positive correlation between posttest motivation and engagement scores ($r = .74$, $p < .001$), suggesting that gains in one variable were associated with corresponding increases in the other.

This correlation implies a synergistic relationship between affective constructs in learning environments where CBP is implemented. Higher levels of motivation appeared to energize engagement behaviors, reinforcing the reciprocal influence of psychological engagement and motivational orientation.

A focused case analysis of two students—one from each group—provided deeper qualitative insights. The student in the experimental group reported increased autonomy, sense of mastery, and emotional investment in learning, which translated into active participation and regular goal-setting. The control group student reported routine engagement with tasks but a lack of connection or internal motivation to excel.

Observational records and learner reflections further confirmed the difference in behavioral dynamics. Students in the experimental group were more likely to initiate peer collaboration, request feedback, and pursue extended learning tasks. These behaviors align with key characteristics of intrinsically motivated and deeply engaged learners.

Data interpretations suggest that the implementation of CBP principles facilitated a learning environment conducive to psychological empowerment. Structured opportunities for self-regulated learning, combined with clear performance targets and formative feedback, were key drivers of affective gains observed in the experimental group.

Short-term impacts of CBP were evident through quantitative shifts and behavioral outcomes. Sustained benefits may require longitudinal follow-up, but the initial results clearly validate the short-term efficacy of competency-based pedagogy in fostering deeper engagement and internal motivation among university students.

The results of this study demonstrated that students exposed to competency-based pedagogy (CBP) experienced statistically and practically significant increases in both motivation and engagement. The experimental group outperformed the control group in posttest scores, with marked improvements observed in intrinsic motivation and behavioral engagement. These findings indicate that CBP provides a more affectively stimulating learning environment compared to traditional instructional methods.

Statistical analysis confirmed the robustness of these differences. ANCOVA results showed significant between-group effects even after controlling for pretest scores. The effect sizes exceeded the threshold for large effects, underscoring the substantial impact of the pedagogical model. The strong correlation between motivation and engagement suggests that the two constructs operate in tandem when instructional conditions are optimized.

Student case analyses further validated the quantitative results. Learners exposed to CBP demonstrated proactive learning behaviors, goal orientation, and deeper emotional investment in their academic tasks. These behaviors are closely aligned with the goals of 21st-century education that emphasize learner autonomy and sustained engagement.

The consistency between statistical findings and observed behaviors suggests that CBP does more than improve surface-level metrics (Brosseuk, 2024; Fowler, 2023; MacKay et al., 2024; Parrott & Napier, 2023). It fosters a foundational shift in students' affective orientation toward learning, making them more resilient, self-directed, and invested in long-term academic success.

Similar results have been reported in recent studies that evaluated CBP's role in enhancing student agency and self-regulation. Scholars such as Sturgis and Patrick (2017) and Dweck (2006) emphasized the link between competence-based learning and increased motivation, supporting the outcomes of this study . The present findings confirm and extend their work by providing experimental evidence of CBP's effect on both psychological and behavioral learning dimensions.

Contrary to some earlier reports suggesting CBP is more effective in vocational or K–12 settings, this study provides evidence of its efficacy in higher education contexts. While the structure of tertiary education often limits innovation in pedagogy, the success of this intervention

suggests that CBP is adaptable and impactful beyond foundational learning stages. It supports broader implementation of CBP in university-level programs where engagement often declines due to rigid curricular structures.

Studies with opposing conclusions, such as those by Ravitch (2018), question the scalability and sustainability of CBP, citing lack of empirical validation. The current findings respond to this criticism by using a controlled experimental design with strong statistical validity. This enhances the credibility of CBP as a generalizable instructional strategy.

This study contributes uniquely to existing literature by linking CBP to motivation and engagement, which are often excluded in CBP evaluations that emphasize skill acquisition and academic achievement. The dual focus on affective outcomes and instructional structure offers a holistic view of CBP's pedagogical value.

The findings signal a critical shift in understanding the mechanics of learning motivation. When students are placed at the center of the learning process and given autonomy over their progress, their motivation becomes internally regulated rather than dependent on external reinforcements. This transformation is evident in the experimental group's enhanced engagement and intrinsic drive.

CBP appears to create a space where learners perceive their efforts as meaningful and aligned with personal growth. The structured feedback, clear benchmarks, and mastery orientation help students build a sense of competence and purpose, both of which are central to self-determination theory. These psychosocial improvements are as important as cognitive gains in preparing students for lifelong learning.

The behavioral evidence in this study-such as increased participation and self-initiated learning-serves as a reflection of deeper identity formation. Students begin to see themselves not as passive recipients of information, but as active agents in their educational journey. This signals a broader redefinition of the learner's role in education.

From a reflective standpoint, the outcomes of this study suggest that affective engagement should be viewed not just as a desirable byproduct of good teaching, but as a primary target of pedagogical design. The evidence points to the need to design curricula that deliberately cultivate motivation and engagement, particularly in environments where learner burnout is prevalent.

The demonstrated effectiveness of CBP has clear implications for curriculum development, instructional training, and educational policy. Institutions seeking to improve student engagement and reduce dropout rates should consider CBP as a viable, evidence-based strategy. Integrating CBP into teacher education programs can help shift pedagogical norms toward more learner-centered practices.

Curriculum designers may benefit from rethinking course structures to allow for modularity, self-pacing, and performance-based progression. The findings of this study suggest that such changes can lead to affective benefits without compromising academic rigor. Institutions can use these results to justify investments in training, instructional redesign, and digital tools that support CBP.

Policymakers in higher education may use this evidence to support policies that endorse flexible learning paths, particularly for students at risk of disengagement. CBP could be instrumental in improving educational equity, as it allows learners to progress based on demonstrated understanding rather than time-based metrics.

The success of CBP in enhancing motivation and engagement could also inform discussions about accreditation standards and quality assurance. Shifting from input-based to outcome-based evaluations aligns with broader global trends in education and meets the demands of a more dynamic, skills-oriented labor market.

The success of CBP in this study can be explained by its alignment with principles of motivational psychology and constructivist learning theory. CBP allows learners to experience autonomy, competence, and relatedness-the three fundamental needs outlined by self-determination theory. This naturally enhances intrinsic motivation and engagement.

Mastery-based progression ensures that learners feel competent before moving on, reducing anxiety and performance pressure. Frequent formative feedback and learning reflection encourage metacognition, enabling students to monitor and regulate their own progress. These elements were absent in the control group and likely explain the differential outcomes observed.

The psychological safety created by CBP may also be a contributing factor. Learners were not penalized for failure but encouraged to view mistakes as opportunities for growth. This fosters a growth mindset and increases perseverance, both of which are known predictors of long-term academic engagement.

These mechanisms work synergistically to enhance student investment. The structure of CBP is not merely pedagogical but also psychological, attending to how students think and feel about their learning. This multi-dimensional impact explains why the experimental group outperformed the control group across all measures.

Future research should explore the longitudinal impact of CBP on learner outcomes beyond a single course or academic term. While this study offers clear evidence of short-term effectiveness, it is important to determine whether motivational and engagement gains are sustained over time and across different disciplines.

Mixed-method approaches could enrich the understanding of student experiences in CBP settings. Incorporating interviews, learning analytics, and classroom observations would provide more nuanced insights into the dynamics of engagement. These methods could also help identify which elements of CBP are most impactful for different types of learners.

Adaptations of CBP for online or hybrid learning environments should be tested. With the increasing prevalence of digital education, understanding how CBP principles translate to virtual contexts is essential. Research can also investigate the role of technology in facilitating personalized learning pathways and real-time feedback loops.

Educational institutions should consider piloting CBP-based reforms across departments, supported by ongoing evaluation and refinement. Faculty development and peer collaboration are essential for scaling innovation. The evidence from this study provides a strong foundation for such systemic experimentation.

CONCLUSION

The study provides empirical evidence that Competency-Based Pedagogy significantly enhances intrinsic motivation and engagement among university students. Beyond academic mastery, CBP creates a psychologically empowering learning environment that fosters learner agency, sustained attention, and emotional investment.

This research contributes conceptually by positioning affective variables-motivation and engagement-as central evaluative dimensions in the implementation of CBP. Existing literature has primarily focused on skill acquisition and learning outcomes, while this study introduces a validated framework for assessing emotional and behavioral responses to pedagogical innovation. The methodological contribution also lies in the experimental design, which integrates psychometric measurement tools and ANCOVA analysis to isolate the impact of the instructional model, thereby offering a replicable model for future classroom-based investigations in educational settings.

This study is limited by its relatively short duration and its focus on a single academic course in a higher education setting, which may constrain the generalizability of findings across broader educational levels or disciplines. Further research is needed to investigate the long-term impact of CBP on student motivation and engagement, especially in diverse and digital learning environments. Future studies could employ longitudinal mixed-method designs, integrate adaptive technologies, or explore differential impacts based on learner profiles to deepen understanding and expand the applicability of CBP across varied educational contexts.

AUTHORS' CONTRIBUTION

Mohzana: Conceptualization; Project administration; Validation; Writing - review and editing; Conceptualization; Data curation; In-vestigation; Data curation; Investigation; Formal analysis;

Methodology; Writing - original draft; Supervision; Validation; Other contribution; Resources; Visuali-zation; Writing - original draft.

REFERENCES

Brosseuk, D. (2024). Mixing performance and competence pedagogic orientations to assessment of writing and text production in the early years. *Contemporary Issues in Early Childhood*, *25*(1), 48–61. https://doi.org/10.1177/14639491221098775

Cancelliere, S., Ramsaroop, S., & Petersen, N. (2023). Infusing 21st-century competencies into scripted foundation phase literacy lessons. *South African Journal of Childhood Education*, *13*(1). https://doi.org/10.4102/SAJCE.V13I1.1288

Collier-Sewell, F., & Monteux, S. (2024). What is the purpose of nurse education (and what should it be)? *Nursing Inquiry*, *31*(3). https://doi.org/10.1111/nin.12640

Conway, B., Nolan, K., & Quille, K. (2024). HCAI Block Model: A competence model for Human Centred Artificial Intelligence at K-12. *ACM International Conference Proceeding Series*, 22–28. https://doi.org/10.1145/3701268.3701273

Fowler, K. R. (2023). Death of the discussion board: Integration of online competency-based assessment in graduate nursing programs. *Nurse Education Today*, *124*. https://doi.org/10.1016/j.nedt.2023.105776

Gadzaova, L., Muskhanova, I., Goverdovskaya, E., Zembatova, L., Khablieva, S., & Ankvab, M. (2024). INFLUENCE OF THE INTERCULTURAL PEDAGOGICAL AND EDUCATIONAL SCIENTIFIC APPROACH ON THE DEVELOPMENT OF INTERCULTURAL COMPETENCE IN STUDENTS. *Relacoes Internacionais No Mundo Atual*, *2*(44), 184–197. https://doi.org/10.21902/Revrima.v2i44.6995

Gargallo-López, B., García-García, F. J., Verde-Peleato, I., & Almerich- Cerveró, G. (2024). The teaching of the Learning to Learn competence in university degrees (Pedagogy and Social Education). *RELIEVE - Revista Electronica de Investigacion y Evaluacion Educativa*, *30*(2), 1–26. https://doi.org/10.30827/RELIEVE.V30I2.29432

Hammoda, B. (2024). The impact of educational technologies on entrepreneurial competencies: A systematic review of empirical evidence. *Knowledge Management and E-Learning*, *16*(2), 309–333. https://doi.org/10.34105/j.kmel.2024.16.015

Hudson, J., & Koenig, T. (2023). The personal is professional: how U.S. social work educators' personal relationships with nature inform their professional lives. *Social Work Education*, *42*(8), 1344–1358. https://doi.org/10.1080/02615479.2021.2021174

Hurtado-Almonacid, J., Páez-Herrera, J., Abusleme-Allimant, R., Sobarzo-Yáñez, C., Muñoz-Arias, I., Giakoni-Ramírez, F., & Duclos-Bastías, D. (2023). University students' perceptions of a physical education curriculum based in competences. *Retos*, *47*, 547–556. https://doi.org/10.47197/retos.v47.94251

Kaljo, K., Ngui, E. M., Treat, R., & Rader, J. S. (2023). Student-centered Pipeline to Advance Research in Cancer Careers (SPARCC): Diversifying the Clinical Cancer Research Workforce. *Journal of Cancer Education*, *38*(1), 370–377. https://doi.org/10.1007/s13187-021-02127-7

Lander, B. (2024). Promoting student-based self-regulated learning with ICT through Lesson Study. In *Implementing a 21st Century Competency-Based Curriculum Through Lesson Study: Teacher Learning About Cross-Curricular and Online Pedagogy* (pp. 159–175). Taylor and Francis. https://doi.org/10.4324/9781003374107-11

Leite, S. (2024). Weaving Curriculum, Assessment, and Pedagogy: Global Citizenship Experience Lab School's Whole-School Approach to Sustainability and Global Citizenship Education. In *Sustainable Development Goals Series: Vol. Part F3104* (pp. 215–226). Springer. https://doi.org/10.1007/978-3-031-56172-6_15

MacKay, M., Ford, C., Grant, L. E., Papadopoulos, A., & McWhirter, J. E. (2024). Developing competencies in public health: a scoping review of the literature on developing competency frameworks and student and workforce development. *Frontiers in Public Health*, *12*. https://doi.org/10.3389/fpubh.2024.1332412

Mensah, B. (2023). Pedagogical competencies in minor subjects of Ghanaian pre-service geography teachers and their implications for teacher education. *Humanities and Social Sciences Communications*, *10*(1). https://doi.org/10.1057/s41599-023-01713-y

Millham, L. R. I., Potter, J., Hirsh, D. A., Trinh, N.-H., Royce, C. S., Levy Carrick, N. C., & Rittenberg, E. (2024). Incorporation of Trauma-Informed Care Into Entrustable Professional Activities for Medical Student Assessment. *Academic Medicine*. https://doi.org/10.1097/ACM.0000000000005824

Mirza, C., Teymoori, H., & Mirza, H. (2023). Washback Effects of High-Stakes Examinations on Teachers' Perceptions of their Instructional Practices. *International Journal of Learning, Teaching and Educational Research*, *22*(9), 571–591. https://doi.org/10.26803/ijlter.22.9.31

Morgan, L., McNiel, P., & Koplitz, J. (2023). Understanding poverty through virtual simulation: implications for student clinical practice. *International Journal of Nursing Education Scholarship*, *20*(1). https://doi.org/10.1515/IJNES-2022-0105

Mueller-Burke, D., Bindon, S., Akintade, B., & Idzik, S. (2024). The AACN essentials: An intentional framework for successful implementation. *Journal of Professional Nursing*, *52*, 62–69. https://doi.org/10.1016/j.profnurs.2024.03.009

Norris-Tirrell, D., & Schmidt, S. T. (2023). Here's What We See Competency-Based Education Can Solve the Nonprofit Disciplinary Conundrum. *Journal of Nonprofit Education and Leadership*, *13*(4), 47–53. https://doi.org/10.18666/JNEL-11777

Nuss, S. V, & Khotimsky, M. (2024). Pedagogy of teaching Russian through STEM in the 21st century. In *Teaching Russian Through STEM: Contexts, Tools, and Approaches* (pp. 233–257). Taylor and Francis. https://doi.org/10.4324/9781032620671-14

Orakova, A., Nametkulova, F., Issayeva, G., Mukhambetzhanova, S., Galimzhanova, M., & Rezuanova, G. (2024). The Relationships between Pedagogical and Technological Competence and Digital Literacy Level of Teachers. *Journal of Curriculum Studies Research*, *6*(1), 1–21. https://doi.org/10.46303/jcsr.2024.2

Ouailal, A., & Mouline, J. (2024). Towards Learner-Centered Teaching: The Case of Mathematics Teachers. *Journal of Educational and Social Research*, *14*(4), 24–39. https://doi.org/10.36941/jesr-2024-0083

Parrott, J., & Napier, T. (2023). Critical Reading and Student Self-Selected Texts: Results of a Collaborative, Explicit Curricular Approach. *Journal of College Reading and Learning*, *53*(4), 316–334. https://doi.org/10.1080/10790195.2023.2247462

Plasse, M. J., & Peterson, K. S. (2023). Incorporating social justice learning into competency-based graduate nursing: A discussion of integrating pedagogies. *Journal of Professional Nursing*, *48*, 119–127. https://doi.org/10.1016/j.profnurs.2023.07.004

R., L., J., B., L., B., N.R., B., K., E., M.S., G., J., R., O.K., S., & G., O. (Eds.). (2023). Proceedings of the 20th International Conference on Principles of Knowledge Representation and Reasoning, KR 2023. In *Proceedings of the International CDIO Conference*. Chalmers University of Technology. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85177088973&partnerID=40&md5=fc66e0050d02fdb0f09a70d11ac802aa

Ravitz, P., Sittampalam, S., Bäck, M., Croswell, K., Swartz, H. A., & Singla, D. R. (2024). Interpersonal psychotherapy training - digital, online educational formats. In *Interpersonal Psychotherapy: A Global Reach* (pp. 65–72). Oxford University Press. https://doi.org/10.1093/oso/9780197652084.003.0008

Royce, C. S., Morgan, H. K., Baecher-Lind, L., Cox, S., Everett, E. N., Fleming, A., Graziano, S. C., Sims, S. M., Morosky, C., Sutton, J., & Sonn, T. (2023). The time is now: addressing implicit bias in obstetrics and gynecology education. *American Journal of Obstetrics and Gynecology*, *228*(4), 369–381. https://doi.org/10.1016/j.ajog.2022.12.016

Sanford, K., Fu, H., Hopper, T., & Hinkel, T. (2023). Pedagogically hacking the system: Developing a competency-based digital portfolio. In *Assessment of Online Learners: Foundations and Applications for Teacher Education* (pp. 187–205). Taylor and Francis. https://doi.org/10.4324/9781003347972-14

Sibley, S., Robinson, K. N., Fairman, J., Nye, C., Poirier, P., & Strout, K. (2024). Preparing for Clinical Placements and Transition to Practice With Objective Structured Clinical Examinations: A Qualitative Study of Family Nurse Practitioner Students. *Clinical Simulation in Nursing*, *97*. https://doi.org/10.1016/j.ecns.2024.101636

Sirili, N., Mloka, D., Mselle, L., Kisenge, R., Mbugi, E., Russa, D., Nyongole, O., Mshana, S. E., Laisser, R., Mteta, K., Msuya, L., Lyamuya, E., Martin-Holland, J., Kwesigabo, G., & Kaaya, E. (2023). Opportunities and Challenges for Implementation of Harmonized Competence-Based Curricula in Medicine and Nursing Programmes in Tanzania: Experiences of Biomedical Sciences' Stakeholders. *Advances in Medical Education and Practice*, *14*, 487–498. https://doi.org/10.2147/AMEP.S381242

Socol, I. D., & Moran, P. R. (2024). The network path to mastery learning. *Phi Delta Kappan*, *106*(2), 8–13. https://doi.org/10.1177/00317217241287978

Sousa, A., Mavis, B., Laird-Fick, H., DeMuth, R., Gold, J., Emery, M., Ferenchick, G., Paganini, A., Colon-Berlingeri, M., Arvidson, C., Toriello, H., Parker, C., Malinowski, R., Han, C., & Wagner, D. (2023). Learning by doing and creation of the shared discovery curriculum. *Medical Education Online*, *28*(1). https://doi.org/10.1080/10872981.2023.2181745

Tomory, I. (2023). STUDENT CENTERED METHODS, SOFT SKILLS AND COMPETENCY BASED LEARNING FROM THE VIEW OF ENGINEERING AND TECHNICAL TEACHER STUDENTS. *20th International Conference on Cognition and Exploratory Learning in Digital Age, CELDA 2023*, 116–124. https://www.scopus.com/inward/record.uri?eid=2-s2.0-85181771571&partnerID=40&md5=e16a275a098f095c41d30505abde3a7c

Trachsler, T. A., Morris, E., & Mahoney, T. Q. (2023). Specifications Grading in the Sport Management Classroom: Breakdown of the System and Reflections Upon Implementation With Relation to Outcomes Assessment. *Sport Management Education Journal*, *17*(2), 121–128. https://doi.org/10.1123/smej.2022-0032

Voliarska, O. V, Matulcik, J., Puchyna, O. V, & Zadorozhna-Kniahnytska, L. (2024). MEDICAL LITERACY DEVELOPMENT OF ADULT POPULATION IN SLOVAKIA AND UKRAINE. *Clinical and Preventive Medicine*, *2024*(2), 92–98. https://doi.org/10.31612/2616-4868.2.2024.12

Voss, R., Lynch, J., & Herbert, S. (2023). Teacher concerns about competency-based mathematics education in a rural Australian VET institution. *Journal of Vocational Education and Training*, *75*(5), 867–889. https://doi.org/10.1080/13636820.2021.1975799