Hacker, Hustler, or Hipster: Decoding Perceived Role Strain in Academic Information Technology Software Development Teams

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ABSTRACT

Software development projects at South East Asian Institute of Technology, Inc. (SEAIT), often require students to adopt roles following the Hacker–Hustler–Hipster framework. While roles are assigned to balance responsibilities, disparities in workload and expectations can still cause stress, impacting both team dynamics and individual performance. Students may experience varying levels of mental, emotional, physical, and social strain. Despite the inevitability of burdens and overload in collaborative teams, limited research has examined how each role specifically affects students' stress levels, providing an incomplete overview of how role assignment impacts wellbeing. To close this gap, the current study evaluated how 241 third-year IT students at SEAIT perceived their stress levels. Subsequent to a role pre-test, respondents were administered a survey using a 4-point Likert scale to assess strain across four dimensions.

The results showed that the demands of coding and problem-solving caused the greatest strain for Hackers ($\bar{x}$ = 2.74, High Strain), who were followed by Hipsters ($\bar{x}$ = 2.59, High Strain) from tasks involving documentation and design. Coordination tasks appeared less taxing, as Hustlers reported the lowest strain ($\bar{x}$ = 2.37, Minimal Strain). Regardless of role, projects can be stressful, as evidenced by the overall mean of 2.56 (High Strain). Statistical analysis using ANOVA revealed that there were no significant differences in emotional strain ($F = 2.618$, $p = 0.07537$), but there were in mental ($F = 9.021$, $p = 0.00018$), physical ($F = 5.959$, $p = 0.00305$), and social ($F = 4.721$, $p = 0.00990$) strains. These findings underscore the significance of role-specific strain, the importance of fair workload distribution, and the need of more robust student support systems in project-based learning environments.

Keywords: Software Development Project, Hacker–Hustler–Hipster Framework, Role Assignment, RoleSpecific Strain, Project-Based Learning

INTRODUCTION

The distribution of functional roles plays a critical part in shaping collaboration and project outcomes. With regard to the Hacker–Hustler–Hipster framework, it has been widely recognized as an approach that supports success in software project-based learning in Information Technology (IT) education because it distributes technical, managerial, and creative responsibilities in ways that foster complementary collaboration and stronger project performance (Chaudhry et al., 2024). However, prior research indicated that distinct role divisions often tend to create unequal workloads, which could heighten strain.

For instance, Kuwabara et al. (2020) observed that imbalances in task allocation often led to stress and frustration among team members who carried disproportionate responsibilities. Workload imbalances, combined with academic pressure, have also been found to intensify challenges to students' mental health (Slimmen et al., 2022).

Sharma (2025) further cautioned that role differentiation, especially when managerial or technical authority was concentrated, risked creating disproportionate stress that disrupts both team dynamics and individual well-being.

Collectively, these studies suggest that disparities in responsibilities can negatively affect collaboration and student welfare, yet they stop short of examining how such strain specifically varies across roles. To address this, the present research investigated and differentiated role-related strain in academic IT software development teams using the Hacker–Hustler–Hipster model. Thus, the study intended to generate evidence-based insights that could guide educators and academic institutions in designing more balanced role assignment practices to enhance collaborative learning experiences.

Objectives of the Study

This study examined the levels of perceived strain experienced by third-year Information Technology (IT) students based on their assigned roles in the culminating software development project for the System Analysis and Design (SAD) course during the second semester of Academic Year 2024–2025 at the South East Asian Institute of Technology, Inc. (SEAIT), in Tupi, South Cotabato, Philippines.

Specifically, it sought to address the following objectives:

To identify the distribution of assigned roles of 3rd year IT students in the project, specifically:

a. Hacker

b. Hustler

c. Hipster

To measure the levels of perceived strain faced by each role, in terms of:

1. Mental Strain

2. Emotional Strain

3. Physical Strain

4. Social Strain

To analyze the significant differences in the perceived strain levels among the Hacker, Hustler, and Hipster roles.

Scope and Delimitation

This study focused on comparing the perceived strain levels of 3rd IT students across their designated roles in the final project for the SAD course at SEAIT during the 2nd semester of AY 2024–2025. It covered two primary variables: roles, particularly, hacker, hustler, or hipster, as the independent variable; and perceived strain levels, in terms of mental, emotional, physical, and social dimensions, as the dependent variable.

The study employed quantitative research methods, using pre-survey and survey questionnaires to gather data. It had the following delimitations: (1) it was limited to the Hacker–Hustler–Hipster framework in analyzing rolerelated strain and did not include other role classification models; (2) students underwent a role pre-test based on their project participation. Those with multiple roles were tested in order of contribution, while students with only one role who failed the pre-survey were considered Unqualified and excluded from the main survey; and (3) the academic project setting may not fully reflect the dynamics of real-world software development teams, while reliance on self-reported perceptions may have introduced response bias. Despite

these delimitations, the study provides valuable insights into the association between different role assignments and perceived strain levels, which can guide educators in improving project design, role distribution, and student support systems in academic software development contexts.

METHODOLOGY

The study utilized a descriptive-comparative research design to map role allocation and evaluate variations in the perceived strain levels experienced among each role. According to McCombes (2023), this quantitative approach is appropriate because it examines and contrasts groups as they naturally exist, without altering any conditions. The descriptive component outlined the distribution of Hacker, Hustler, and Hipster roles in the culminating software development project, while the comparative component explored the differences in perceived strain levels across the three role categories.

A simple random sampling was employed, involving 241 3rd year IT students from a population of 608, as determined using Slovin's formula with a 95% confidence level and a 5% margin of error. This sampling technique guaranteed fairness in representation and reduced bias in the data collection process (Ahmed, 2024).

The primary data collection tool was a modified survey questionnaire adapted from Licorish and MacDonell (2017), Javier (2021), and Uddin et al. (2022). The instrument comprised role identification and an assessment of perceived strain levels across mental, emotional, physical, and social dimensions. Responses were measured using a 4-point Likert scale, with each point corresponding to a specific range and verbal description. Prior to administering the main questionnaire, a researcher-made pre-survey, validated by three IT instructors, was conducted to determine whether the students were qualified for their assigned roles. Data collection adhered to ethical standards for confidentiality, transparency, informed consent, and coordination with the program head of College of Information and Communication Technology (CICT).

In the analysis of data, descriptive and inferential statistics were applied. Frequency and percentage were used to present the distribution of respondents across the Hacker, Hustler, and Hipster roles, while mean scores were computed to assess perceived strain levels in the mental, emotional, physical, and social domains. To determine whether significant differences existed in strain among the three roles in these domains, a One-Way Analysis of Variance (ANOVA) was employed as the inferential statistical tool.

RESULTS AND DISCUSSION

Distribution of Assigned Roles

Table 1 presents the distribution of assigned roles among third-year IT students during their culminating software development project. The Hacker had the highest number of students which is 83 (34%), while the Hipster role accounted for 78 students (32%). The Hustler included 47 students (20%), and 33 students (14%) were categorized as Unqualified. The high concentration of Hackers suggests that students often prioritize roles closely tied to technical output and coding, as noted by Rudic et al. (2021), who viewed the role as the builder who creates the core value, making the role a more desirable and professional-affirming identity in a technologydriven academic setting.

Table 1: Distribution of Hacker, Hustler, and Hipster Roles among Third-Year IT Students

Role	Frequency	Percentage
Hacker	83	34%
Hustler	47	20%
Hipster	78	32%
Unqualified	33	14%
Total	**241**	**100%**

Perceived Strain Levels by Role

Table 2 reveals the perceived mental strain levels of third-year Information Technology students based on their

assigned roles during the culminating software development project. Among the three roles, the Hacker recorded the highest overall strain ($\bar{x}$ = 2.89, High Strain), with the highest mean observed in *"sustained problem-solving under time pressure"* ($\bar{x}$ = 2.98). The Hipster registered a mean score of 2.58 (High Strain), while the Hustler had the lowest at 2.43 (Minimal Strain), both reporting their highest values in the indicator "balancing multiple tasks," 2.76 and 2.53, respectively. This indicates that Hackers, who handle the technical core of the project, are more prone to cognitive exhaustion due to the complexity and precision required in programming. This aligns with Gonçales et al. (2021), who emphasized that software developers face high cognitive demands from coding and debugging tasks. In contrast, Hustlers and Hipsters experience lighter mental strain, displaying the less analytical yet still demanding nature of coordination and documentation tasks.

Table 2: Perceived Mental Strain Level by Role

Role	Indicators	Mean	Interpretation
Hacker	1. My role requires sustained problem-solving under time pressure.	2.98	High Strain
	2. I feel mentally fatigued after fulfilling my role's responsibilities.	2.95	High Strain
	3. Balancing multiple role-related tasks is mentally demanding.	2.88	High Strain
	4. I find it difficult to focus on tasks due to distractions related to my role.	2.76	High Strain
	5. I experience frequent cognitive overload while working in my role.	2.88	High Strain
	Overall Mean	**2.89**	**High Strain**
Hustler	1. My role requires sustained problem-solving under time pressure.	2.51	High Strain
	2. I feel mentally fatigued after fulfilling my role's responsibilities.	2.45	Minimal Strain
	3. Balancing multiple role-related tasks is mentally demanding.	2.53	High Strain
	4. I find it difficult to focus on tasks due to distractions related to my role.	2.26	Minimal Strain
	5. I experience frequent cognitive overload while working in my role.	2.40	Minimal Strain
	Overall Mean	**2.43**	**Minimal Strain**
Hipster	1. My role requires sustained problem-solving under time pressure.	2.45	Minimal Strain
	2. I feel mentally fatigued after fulfilling my role's responsibilities.	2.55	High Strain
	3. Balancing multiple role-related tasks is mentally demanding.	2.76	High Strain

	4. I find it difficult to focus on tasks due to distractions related to my role.	2.47	Minimal Strain
	5. I experience frequent cognitive overload while working in my role.	2.65	High Strain
	Overall Mean	**2.58**	**High Strain**

Legend:

Scale Value	**Range**	**Verbal Description**
1	1.00 – 1.75	No Strain
2	1.76 – 2.50	Minimal Strain
3	2.51 – 3.25	High Strain
4	3.26 – 4.00	Extreme Strain

Table 3 displays the role-specific emotional strain of third-year IT students in the SAD course software project. Within the roles, Hackers experienced the highest overall emotional strain ($\bar{x}$ = 2.70, High Strain), followed by Hipsters ($\bar{x}$ = 2.63, High Strain), while Hustlers showed the lowest overall strain ($\bar{x}$ = 2.42, Minimal Strain). For all three roles, the indicator "Emotional stress when deadlines approach" yielded the highest mean (Hacker = 2.90; Hipster = 2.86; Hustler = 2.85). Although Hustlers may appear to face lower overall emotional strain, the Project Management Institute (2025) states that leadership responsibilities substantially increase emotional workload. This indicates that Hustlers can encounter significant emotional strain, as their role involves managing team dynamics, resolving conflicts, and sustaining group morale.

Table 3: Perceived Emotional Strain Level by Role

Role	**Indicators**	**Mean**	**Interpretation**
Hacker	1. I feel emotionally stressed when deadlines approach.	2.90	High Strain
	2. Conflicting expectations in my role cause emotional discomfort.	2.73	High Strain
	3. I sometimes feel discouraged or demotivated because of challenges in my role.	2.73	High Strain
	4. I experience anxiety related to performance in my role.	2.61	High Strain
	5. Receiving criticism for my role-related work affects me emotionally.	2.51	High Strain
	Overall Mean	**2.70**	**High Strain**
Hustler	1. I feel emotionally stressed when deadlines approach.	2.85	High Strain
	2. Conflicting expectations in my role cause emotional discomfort.	2.47	Minimal Strain
	3. I sometimes feel discouraged or demotivated because of challenges in my role.	2.30	Minimal Strain
	4. I experience anxiety related to performance in my role.	2.26	Minimal Strain

	5. Receiving criticism for my role-related work affects me emotionally.	2.21	Minimal Strain
	Overall Mean	**2.42**	**Minimal Strain**
Hipster	1. I feel emotionally stressed when deadlines approach.	2.86	High Strain
	2. Conflicting expectations in my role cause emotional discomfort.	2.68	High Strain
	3. I sometimes feel discouraged or demotivated because of challenges in my role.	2.58	High Strain
	4. I experience anxiety related to performance in my role.	2.42	Minimal Strain
	5. Receiving criticism for my role-related work affects me emotionally.	2.59	High Strain
	Overall Mean	**2.63**	**High Strain**

Legend:

Scale Value	**Range**	**Verbal Description**
1	1.00 – 1.75	No Strain
2	1.76 – 2.50	Minimal Strain
3	2.51 – 3.25	High Strain
4	3.26 – 4.00	Extreme Strain

Table 4 exhibits the physical strain experienced by third-year Information Technology students in relation to their designated roles during software development project. Hackers endured the greatest overall physical strain ($\bar{x}$ = 2.81, High Strain), with Hipsters showing moderately high strain ($\bar{x}$ = 2.69, High Strain), and Hustlers exhibiting the lowest strain ($\bar{x}$ = 2.39, Minimal Strain). Among the indicators, "physical symptoms such as headaches or eye strain" conveyed the most pronounced discomfort, with mean scores of 2.94 for Hackers, 2.82 for Hipsters, and 2.51 for Hustlers. These results suggest that roles requiring prolonged computer engagement and intensive task execution are more likely to contribute to physical strain, consistent with findings by Pattath and Webb (2022), who reported significant musculoskeletal discomfort among college students due to extended computer use.

Table 4: Perceived Physical Strain Level by Role

Role	**Indicators**	**Mean**	**Interpretation**
Hacker	1. My role requires prolonged use of computers or devices, causing physical discomfort.	2.75	High Strain
	2. Physical symptoms such as headaches or eye strain arise from my role's workload.	2.94	High Strain
	3. The physical environment or setup for my role negatively affects my comfort.	2.71	High Strain
	4. I experience muscle tension or pain due to posture or repetitive actions in my role.	2.90	High Strain

	5. I get physically tired because of the duration or intensity of work required by my role.	2.77	High Strain
	Overall Mean	**2.81**	**High Strain**
Hustler	1. My role requires prolonged use of computers or devices, causing physical discomfort.	2.40	Minimal Strain
	2. Physical symptoms such as headaches or eye strain arise from my role's workload.	2.51	High Strain
	3. The physical environment or setup for my role negatively affects my comfort.	2.32	Minimal Strain
	4. I experience muscle tension or pain due to posture or repetitive actions in my role.	2.30	Minimal Strain
	5. I get physically tired because of the duration or intensity of work required by my role.	2.40	Minimal Strain
	Overall Mean	**2.39**	**Minimal Strain**
Hipster	1. My role requires prolonged use of computers or devices, causing physical discomfort.	2.72	High Strain
	2. Physical symptoms such as headaches or eye strain arise from my role's workload.	2.82	High Strain
	3. The physical environment or setup for my role negatively affects my comfort.	2.54	High Strain
	4. I experience muscle tension or pain due to posture or repetitive actions in my role.	2.64	High Strain
	5. I get physically tired because of the duration or intensity of work required by my role.	2.73	High Strain
	Overall Mean	**2.69**	**High Strain**

Legend:

Scale Value	**Range**	**Verbal Description**
1	1.00 – 1.75	No Strain
2	1.76 – 2.50	Minimal Strain
3	2.51 – 3.25	High Strain
4	3.26 – 4.00	Extreme Strain

Table 5 illustrates the social strain associated with each role among third-year IT students participating in software development project. The Hacker exhibited the highest strain ($\bar{x}$ = 2.54, High Strain), reaching its peak in “I feel pressure to meet others’ expectations” ($\bar{x}$ = 2.95). The Hipster indicated the next highest level ($\bar{x}$ = 2.44, Minimal Strain), with the greatest mean in “balancing social life with role responsibilities” ($\bar{x}$ = 2.62). Finally, the Hustler demonstrated the lowest strain ($\bar{x}$ = 2.22, Minimal Strain), with its highest score observed in “I feel pressure to meet others’ expectations” ($\bar{x}$ = 2.47). This shows that technical roles tend to encounter

greater social stress due to heavier workloads, higher performance expectations, and more complex problem-solving compared to creative or coordination roles, which are generally less demanding (Jensen et al., 2023).

Table 5: Perceived Social Strain Level by Role

Role	Indicators	Mean	Interpretation
Hacker	1. Collaboration and communication demands cause social stress in my role.	2.51	High Strain
	2. I sometimes experience conflicts or disagreements with teammates related to my role.	2.46	Minimal Strain
	3. I feel pressure to meet others' expectations in my role.	2.95	High Strain
	4. Balancing social life with role responsibilities is challenging.	2.83	High Strain
	5. I feel isolated or unsupported by my team during the project.	1.98	Minimal Strain
	Overall Mean	**2.54**	**High Strain**
Hustler	1. Collaboration and communication demands cause social stress in my role.	2.30	Minimal Strain
	2. I sometimes experience conflicts or disagreements with teammates related to my role.	2.11	Minimal Strain
	3. I feel pressure to meet others' expectations in my role.	2.47	Minimal Strain
	4. Balancing social life with role responsibilities is challenging.	2.36	Minimal Strain
	5. I feel isolated or unsupported by my team during the project.	1.87	Minimal Strain
	Overall Mean	**2.22**	**Minimal Strain**
Hipster	1. Collaboration and communication demands cause social stress in my role.	2.51	High Strain
	2. I sometimes experience conflicts or disagreements with teammates related to my role.	2.36	Minimal Strain
	3. I feel pressure to meet others' expectations in my role.	2.60	High Strain
	4. Balancing social life with role responsibilities is challenging.	2.62	High Strain
	5. I feel isolated or unsupported by my team during the project.	2.13	Minimal Strain
	Overall Mean	**2.44**	**Minimal Strain**

Legend:

Scale Value	Range	Verbal Description
1	1.00 – 1.75	No Strain
2	1.76 – 2.50	Minimal Strain
3	2.51 – 3.25	High Strain
4	3.26 – 4.00	Extreme Strain

Table 6 summarizes the overall perceived strain levels of third-year Information Technology students across the three functional team roles in end-of-course software development project. Hackers showed the highest overall

strain ($\bar{x}$ = 2.74, High Strain), followed by Hipsters ($\bar{x}$ = 2.59, High Strain), while Hustlers reflected the lowest strain ($\bar{x}$ = 2.37, Minimal Strain). This pattern is consistent across all dimensions of strain. The overall mean strain across all roles is 2.56, a High Strain level, indicates that participation in software development projects generates substantial stress for students. These findings correspond with Tulili et al. (2023), who reported that software development teams experience significant strain due to high workloads, tight deadlines, and the requirement for rapid skill acquisition.

Table 6: Overall Perceived Strain Level by Role

Role	**Mental Strain**	**Emotional Strain**	**Physical Strain**	**Social Strain**	**Overall Mean**	**Interpretation**
Hacker	2.89	2.70	2.81	2.54	2.74	High Strain
Hustler	2.43	2.42	2.39	2.22	2.37	Minimal Strain
Hipster	2.58	2.63	2.69	2.44	2.59	High Strain
Overall Mean	**2.63**	**2.58**	**2.63**	**2.40**	**2.56**	**High Strain**

Legend:

Scale Value	**Range**	**Verbal Description**
1	1.00 – 1.75	No Strain
2	1.76 – 2.50	Minimal Strain
3	2.51 – 3.25	High Strain
4	3.26 – 4.00	Extreme Strain

Significant Differences in Perceived Strain Levels among Roles

Table 7 shows the significant differences in perceived strain levels of third-year IT students among the Hacker, Hustler, and Hipster roles during the software project-based learning. The analysis indicated significant differences in mental strain (F = 9.021, p = 0.00018), physical strain (F = 5.959, p = 0.00305), and social strain (F = 4.721, p = 0.00990) across the three roles, as their computed F-values exceed the critical F-value (3.040) and their p-values are below 0.05. This demonstrates that strain in academic software development teams is largely role-dependent. In contrast, no significant difference was found in emotional strain (F = 2.618, p = 0.07537), implying that this dimension remains relatively similar among the roles. Tan and Jung (2024) found that emotional presence in collaborative settings often becomes uniform across participants as teams collectively manage affective challenges and maintain cohesion. This means that despite their different responsibilities, students experience similar emotional strain because of shared team-based regulation mechanisms.

Table 7: One-Way Analysis of Variance (ANOVA) Test Result on Perceived Strain Levels among Hacker, Hustler, and Hipster Roles

Mental Strain	**Mean**	**F**	**F-crit**	**P-value**	**Description**
Hacker	2.889	9.021	3.040	0.00018	Significant
Hustler	2.430				

Hipster	2.577				
Emotional Strain	**Mean**	**F**	**F-crit**	**P-value**	**Description**
Hacker	2.699	2.618	3.040	0.07537	Not Significant
Hustler	2.417				
Hipster	2.626				
Physical Strain	**Mean**	**F**	**F-crit**	**P-value**	**Description**
Hacker	2.814	5.959	3.040	0.00305	Significant
Hustler	2.387				
Hipster	2.690				
Social Strain	**Mean**	**F**	**F-crit**	**P-value**	**Description**
Hacker	2.544	4.721	3.040	0.00990	Significant
Hustler	2.221				
Hipster	2.443				
Legend: Computed F < critical F = Not Significant Computed F > critical F = Significant Computed P-value > α (0.05) = Not Significant Computed P-value < α (0.05) = Significant					

CONCLUSION

The following conclusions were drawn from the findings of the study:

1. The distribution of roles among third-year Information Technology students is uneven, with most students handling technical and documentation tasks. This indicates a stronger inclination toward the Hacker and Hipster roles, while fewer students took on the Hustler or management role.
2. All respondents underwent stress to varying degrees. Hackers reported the highest strain in all areas due to heavy workloads involving coding, problem-solving, and technical tasks. Hustlers carried the lowest strain, as coordination duties allowed smoother management of mental, physical, emotional, and social demands. Hipsters, on the other hand, showed minimal to high levels of mental, emotional, and physical strain, suggesting that creative and documentation tasks require sustained focus and effort. Overall, the high average strain across all roles demonstrates that software development projects are inherently stressful.
3. Role type significantly influenced mental, physical, and social strain, while emotional strain remained relatively constant across roles. This shows that the nature of assigned responsibilities directly affects how students experience stress.

RECOMMENDATIONS

Based on the findings and conclusions presented, the following recommendations were made:

1. Students should manage strain by practicing time management, prioritizing tasks, taking breaks, and regularly assessing their workload. Those in technical and documentation roles should focus on reducing mental and physical fatigue, while students in coordination roles should strengthen communication and teamwork skills.

2. Instructors should monitor the distribution of roles to prevent excessive workload on students assigned to technical and documentation tasks. Providing guidance on task management, stress coping techniques, and collaborative practices can help reduce strain. Regular feedback sessions and check-ins can identify students experiencing high pressure and enable timely intervention to support both academic performance and well-being.
3. Departments should consider implementing policies that ensure a more balanced allocation of roles in software development projects. Rotating or distributing technical, creative, and coordination responsibilities can help mitigate strain while fostering equitable learning opportunities. Additionally, offering workshops or resources on stress management, time management, and team collaboration can further support student success.
4. Educational Institutions should promote sustainable project-based learning by integrating balanced role assignment and student well-being strategies into program design. Establishing support mechanisms, such as counseling services, peer mentoring, and wellness programs, can help reduce strain and maintain both academic standards and student health.
5. Future research should evaluate interventions such as task redistribution, role rotation, conflict-resolution training, and stress or workload management to reduce strain in project-based learning. Employing both quantitative and qualitative approaches, including surveys, interviews, focus groups, and case studies, can provide a comprehensive understanding of students' experiences. Comparative and longitudinal studies can identify best practices, assess long-term effects on student well-being, academic performance, and teamwork, and guide the development of effective project-based learning programs and educational policies.

Ethical Considerations

The researchers obtained formal approval from the program head of the College of Information and Communication Technology (CICT). Following authorization, ethical considerations were carefully observed throughout every stage of the research. The respondents were treated with the utmost regard, and their anonymity was protected to guarantee the confidentiality of their personal information and responses, thereby safeguarding their autonomy. Informed consent was acquired to ensure that participants clearly understand the purpose of the study, the scope of their involvement, and any potential risks associated with participation. Participation remained voluntary, with respondents retaining the right to withdraw at any time without consequence. Throughout the research process, measures were implemented to minimize harm and assure the well-being of respondents. Furthermore, all data collected were securely stored and used exclusively for academic purposes. Thus, this study adhered strictly to ethical standards and guidelines set by relevant regulatory bodies, ensuring transparency, integrity, and accountability at each stage.

REFERENCES

1. Ahmed, S. K. (2024). How to choose a sampling technique and determine sample size for research: A simplified guide for researchers. Oral Oncology Reports, 12, Article 100662. https://doi.org/10.1016/j.oor.2024.100662
2. Chaudhry, S., Tandon, A., Shinde, S., & Bhattacharya, A. (2024). Student psychological well-being in higher education: The role of internal team environment, institutional, friends and family support and academic engagement. PLoS ONE, 19(1), e0297508. https://doi.org/10.1371/journal.pone.0297508
3. Gonçales, L. J., Farias, K., & da Silva, B. C. (2021). Measuring the cognitive load of software developers.
4. Information and Software Technology, Volume 136, 106563, ISSN 0950-5849. https://www.sciencedirect.com/science/article/abs/pii/S095058492100046X
5. Javier, B. S. (2021). Understanding their voices from within: Difficulties and code comprehension of lifelong novice programmers. International Journal of Arts, Sciences and Education, 1(1), 53–73. https://www.ijase.org/index.php/ijase/article/view/1
6. Jensen, K. J., Mirabelli, J. F., Kunze, A. J., Romanchek, T. E., & Cross, K. J. (2023). Undergraduate student perceptions of stress and mental health in engineering culture. International Journal of STEM

Education, 10, Article 30. https://stemeducationjournal.springeropen.com/articles/10.1186/s40594-02300419-6

7. Kuwabara, M., Einbinder, S. D., Sun, R., & Azizi, R. (2020). Collaborative learning techniques, student learning outcomes, and equal workload within groups in different teaching modalities. International
8. Journal of Teaching and Learning in Higher Education, 32(2), 293–304. https://files.eric.ed.gov/fulltext/EJ1286478.pdf
9. Licorish, S. A., & MacDonell, S. G. (2017). Exploring software developers' work practices: Task differences, participation, engagement, and speed of task resolution. Information & Management 54(3), pp.364-382. https://arxiv.org/pdf/2104.07847
10. McCombes, S. (2023). Descriptive Research | definition, types, methods & examples. Scribbr. https://www.scribbr.com/methodology/descriptive-research/
11. Pattath, P., & Webb, L. (2022). Computer-usage and associated musculoskeletal discomfort in college students. WORK: A Journal of Prevention, Assessment & Rehabilitation, 73(1), 327334. https://doi.org/10.3233/WOR-210523
12. Project Management Institute. (2025). The invisible workload: Managing emotional labor in project management. PMI CIC. https://pmi-cic.org/blog/id/47
13. Rudic, B., Hubner, S., & Baum, M. (2021). Hustlers, hipsters and hackers: Potential employees' stereotypes of entrepreneurial leaders. Journal of Business Venturing Insights, 15, e00220. https://ideas.repec.org/a/eee/jobuve/v15y2021ics2352673420300767.html
14. Sharma, M. (2025). Hipsters, hustlers, hackers, and the invisible thread: Role differentiation and its impact on team dynamics and mental health. Manu Sharma Blog. https://manusharma.ca/the-art-of-buildinghipsters-hustlers-hackers-and-the-invisible-thread/
15. Slimmen, S., Timmermans, O., Mikolajczak-Degrauwe, K., & Oenema, A. (2022). How stress-related factors affect mental wellbeing of university students: A cross-sectional study to explore the associations between stressors, perceived stress, and mental wellbeing. PLoS One, 17(11): e0275925. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9639818/
16. Tan, S. E., & Jung, I. (2024). Unveiling the dynamics and impact of emotional presence in collaborative learning. Int J Educ Technol High Educ 21, 44. https://doi.org/10.1186/s41239-024-00477-y
17. Tulili, T. R., Capiluppi, A., & Rastogi, A. (2023). Burnout in software engineering: A systematic mapping study. Information and Software Technology, Volume 155, 107116, ISSN 0950-5849. https://doi.org/10.1016/j.infsof.2022.107116
18. Uddin, G, Alam, O., & Serebrenik, A. (2022). A qualitative study of developers' discussions of their problems and joys during the early months of COVID-19. Empirical Software Engineering, 27(3), Article 59. https://pmc.ncbi.nlm.nih.gov/articles/PMC9166204/