

Focusing on both Software Development and Communication

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Introducing Learning by Writing

- Introducing Communication in Engineering via Writing to Learn
- The Syllabus
 - Writing Component – 35%
 - This is graded
 - Every Class Writing
 - This is low stakes
 - Participation points
 - Receives Candies 😊

Every Class Writing to Learn

- User Stories
 - They write a sentence or 2
- First class
- Ex. What is your first step in celebrating your friend's birthday?
 - Everybody is given an index card
 - They have 5 mins to think and write no more than two sentences
 - Everyone shares
 - We identify the best sentences that were formed

Every Class Writing to Learn – User Stories

User Stories – They write five sentences

Ex. Develop a weather app for grandma?

They now use these words to answer the user story

The What, The Who, The Why, The How, The When

They have 5 mins to think and write no more than two sentences

Everyone shares

We identify the best sentences that were formed

Assignment to Writing to Learn – The Framework

- Students write a paper on an ensemble framework
- They pick a framework and write with examples.

Assignment to Writing to Learn – The Framework – 1st assignment

- The first major communication assignment was assigned in the second quarter.
- This is 15% of the 35% that they have in the communication group
- They pick a framework and write with examples.
- Each student had to choose any one process like extreme programming (XP) team, feature driven development (FDD) team, Lean Team, Kanban Team, and Scrum Team.

Assignment to Writing to Learn – The Midterm

- The second major communications assignment was a take-home midterm that was based on Agile manifestos.
- This assignment was 10% of their 35% of the communication block.
- This was assigned to them between the second and the third quarters.
- The instructions
 - Read the given journal article [7]
 - Apply the agile manifestos to your interest/hobby
 - detail how you would implement agile manifestos to teach or implement the interest/hobby in question.
 - Submit an article not less than five pages in the IEEE format uploaded here.
 - Please submit as a word document so I can allow double-blind review

Assignment to Writing to Learn – Third Assignment

- The third assignment was assigned in the third quarter of the semester.
- It is called the lighting talk assignment.
- This was 5% of the 35%
- Prepare 15 slides and had to be timed such that the presentation is completed in five minutes.
 - The slides had to scroll automatically, and they did not have any control over the slides.
 - They had to talk as each of the slides appear.
 - The topic was their choice from a list of agile vocabularies given to them.

Assignment to Writing to Learn – Fourth Assignment

- The final major assignment was assigned to them in the fourth quarter.
- This was fulfilling their partial requirement of the final exam.
- The weightage on this assignment was 5% of the 35% communication block.
- Write two pages about a topic from the list of topics given.
- Make a presentation.
- The instructions
 - Choose a topic, make a presentation and write about two pages on any topic that you choose from below.
 - Make citations and references

Conclusion and Future Work

- Overall the students appreciated the teaching pattern of using multi-mode approaches.
- In the future, to help students better write a co-teaching class or a schedule time with the writing center would help students to learn to write.
- Students can be asked to present their work at the student conference
- This might help them increase their self-confidence.

References

- [1] J. Braham, “‘Technical skepticism will always be important’.” *Machine Design*, vol. 69, no. 5, pp. 163, 166, 168, 1997.
- [2] V. A. Khamisani, M. S. Siddiqui, and M. Y. Bawany, “Analyzing Soft Skills of Software Engineers using Repertory Grid,” 2006, pp. 259–264, doi: 10.1109/INMIC.2006.358174.
- [3] F. Ahmed, L. F. Capretz, and P. Campbell, “Evaluating the Demand for Soft Skills in Software Development,” *IT Professional*, vol. 14, no. 1, pp. 44–49, 2012, doi: 10.1109/MITP.2012.7.
- [4] F. Ahmed, L. Capretz, S. Bouktif, and P. Campbell, “Soft Skills and Software Development: A Reflection from the Software Industry,” *arXiv.org*, vol. 4, no. 3, 2015, doi: 10.4156/ijipm.vol14.issue3.17.
- [5] Yvonne Sedelmaier and Dieter Landes, “SWEBOS – The Software Engineering Body of Skills,” *International Journal of Engineering Pedagogy (IJEP)*, vol. 5, no. 1, pp. 20–26, 2015, doi: 10.3991/ijep.v5i1.4047.
- [6] C. Marinovici, H. Kirkham, and K. Glass, “The Hidden Job Requirements for a Software Engineer,” 2014, pp. 4979–4984, doi: 10.1109/HICSS.2014.611.
- [7] B. O. Ackles, “AGILE DEVELOPMENT INSTRUCTIONAL FRAMEWORK (ADIF): A New Strategy for Student-Centered Music Education,” *The Choral Journal*, vol. 59, no. 2, pp. 22–35, 2018.

