

Achieving Project Management Educational Web-Tool Evolution Using Service-based Software

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RESUMO

O Gerenciamento de Projetos (GP) é vital no desenvolvimento de software e a disponibilidade de ferramentas educacionais aprimora a experiência de aprendizado das melhores práticas. Este estudo se concentra no desenvolvimento de uma ferramenta da web para educação em GP e empregou uma abordagem de software baseada em serviço para desenvolver uma ferramenta da web. Conduzimos uma pesquisa usando a plataforma LimeSurvey para identificar aspectos do PMBOK® para definir requisitos técnicos, reunir informações do usuário para a nova versão da ferramenta e formular perguntas de pesquisa para orientar a implementação. Os resultados da pesquisa de 16 entrevistados revelaram áreas de conhecimento com cobertura insuficiente do PMBOK® e áreas que precisam de melhorias não funcionais. O design e a administração do questionário aderiram às melhores práticas, oferecendo insights valiosos para o desenvolvimento de ferramentas. Este estudo enfatiza a importância da educação em GP e a necessidade de ferramentas eficazes. A ferramenta da web desenvolvida auxilia alunos e professores a aderir às melhores práticas e a aprimorar as habilidades de GP. Pesquisas futuras podem se concentrar em aprimorar ainda mais a ferramenta e avaliar sua eficácia em ambientes educacionais.

Palavras-chave: Gerenciamento de Projetos; PMBOK; Ferramenta de Gerenciamento de Projetos de Software; Survey.

ABSTRACT

Project Management (PM) is vital in software development and the availability of educational tools enhances the learning experience of best practices. This study focuses on developing a web-tool for PM education and employed a service-based software approach to develop a web-tool. We conducted a survey using the LimeSurvey platform to identify PMBOK® aspects to define technical requirements, gather user input for the tool's new version, and formulate research questions to guide implementation. Survey results from 16 respondents revealed knowledge areas with insufficient PMBOK® coverage and areas needing non-functional improvements. The questionnaire design and administration adhered to best practices, offering valuable insights for tool development. This study emphasizes the significance of PM education and the need for effective tools. The developed web-tool aids students and professors in adhering to best practices and enhancing PM skills. Future research can focus on further enhancing the tool and evaluating its effectiveness in educational settings.

Keywords: Project Management; PMBOK; Project Management Software Tool; Survey.

REFERÊNCIAS

- Cheung, A. K. L. (2014). Structured Questionnaires, pages 6399–6402. Springer Netherlands, Dordrecht.
- Chugh, R., Turnbull, D., Cowling, M. A., et al. (2023). Implementing educational technology in higher education institutions: A review of technologies, stakeholder perceptions, frameworks and metrics. *Education and Information Technologies*, 28(Issue Number):16403–16429.
- Desmet, P., Overbeeke, K., and Tax, S. (2001). Designing Products with Added Emotional Value: Development and Application of an Approach for Research through Design. *The Design Journal*, 4(1):32–47.
- Dominguez, J. (2009). The curious case of the chaos report 2009. *Project Smart*, pages 1–16.
- D’angelo, G., Iorio, A., and Zacchiroli, S. (2018). Spacetime characterization of realtime collaborative editing. *Proceedings of the ACM on Human-Computer Interaction*, 2:1–19.
- Fernandes, G., Ward, S., and Araújo, M. (2022). Identifying useful project management practices: A mixed methodology approach. *International Journal of Information Systems and Project Management*.
- Hood, D. J. and Hood, C. S. (2006). Teaching software project management using simulations. In 11th Annual SIGCSE Conference on Innovation and Technology in Computer Science Education, ITICSE ’06, pages 289–293, New York, NY, USA. ACM.
- Kasunic, M. (2005). Designing an effective survey. Technical report, Carnegie-Mellon Univ Pittsburgh PA Software Engineering Inst.
- Kerzner, H. (2017). Project management: a systems approach to planning, scheduling, and controlling. John Wiley & Sons.
- Molléri, J. S., Gonzalez-Huerta, J., and Henningsson, K. (2018). A legacy game for project management in software engineering courses. In 3rd European Conference of Software Engineering Education, ECSEE’18, pages 72–76, New York, NY, USA. ACM.
- Msafiri, M. M., Kangwa, D., and Cai, L. (2023). A systematic literature review of ict integration in secondary education: what works, what does not, and what next? *Discoveries in Education*, 2(44).
- Nakamura, T., Taguchi, E., Hirose, D., Masahiro, I., and Takashima, A. (2011). Role-play training for project management education using a mentor agent. In IEEE/WIC/ACM International Conferences on Web Intelligence and Intelligent Agent Technology - Volume 03, WI-IAT ’11, pages 175–180, USA. IEEE.
- Nielsen, J. (1993). Usability Engineering. Academic Press.
- PMI (2016). The high cost of low performance: how will you improve business results? Pulse of the Profession: 8th Global Project Management Survey.

PMI (2021). A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Seventh Edition. Project Management Institute, Newtown Square, PA.

Posner, J., Russell, J. A., and Peterson, B. S. (2005). The circumplex model of affect: An integrative approach to affective neuroscience, cognitive development, and psychopathology. *Development and Psychopathology*, 17(3):715–734.

Presser, S. and Schuman, H. (1980). The measurement of a middle position in attitude surveys. *Public Opinion Quarterly*, 44(1):70–85.

Radujkovic, M. and Sjekavica, M. (2017). Project management success factors. *Procedia engineering*.

Ralph, P. (2018). Re-imagining a course in software project management. *ICSE-SEET '18*, pages 116–125, New York, NY, USA. ACM.

Reijneveld, K., De Looze, M., Krause, F., and Desmet, P. (2003). Measuring the Emotions Elicited by Office Chairs. In *International Conference on Designing Pleasurable Products and Interfaces, DPPI'03*, pages 6–10, New York, NY, USA. ACM.

Russell, J. A. (1980). A circumplex model of affect. *Journal of Personality and Social Psychology*, 39(6):1161.

Salim, M., Yousuf, M. R., and Sulaiman, M. (2015). Usability, Interactivity, and Ease of Use of E-learning Systems: A Literature Review. *Education and Information Technologies*, 28(9):11819–11866.

Shull, F., Singer, J., and Sjøberg, D. I. (2007). *Guide to advanced empirical software engineering*. Springer.

Sjøberg, D. I. K. and Bergersen, G. R. (2023). Construct validity in software engineering. *IEEE Trans. Software Eng.*, 49(3):1374–1396.

Wohlin, C., Runeson, P., Höst, M., Ohlsson, M. C., and Regnell, B. (2012). *Experimentation in Software Engineering*. Springer.