When and How to Introduce Students to Free and Open-Source Software

Inaugural GVSU Technology Summit

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1 Introduction

1.1 Follow Along

- See the link to presentation handout on Tech Summit Website!: www4.gvsu.edu/gvtechsummit

1.2 Disclosures and Disclaimers

- I have no disclosures or conflicts-of-interests related to this presentation
- I am not a software engineer, computer scientist, or other technology-oriented professional by training - but am an enthusiast and hobbyist

1.3 Learning Objectives

- Appreciate *why* we should pay attention to how software is published and priced (Sections: Motivation and Purpose)
- Understand the vocabulary used to describe pricing models and source code availability in software (Section: Vocabulary of Software Availability and Pricing)
- Appreciate both the advantages and disadvantages of adopting open-source alternatives into instruction (Section: Advantages and Challenges)
- Consider the ways in which exposure to different tools and methods produces more technology-literate students (Section: Connection to Tech Literacy)
- Learn about some methods to bring more diverse software to students (Section: Examples of Integration)

1.4 Motivation

- The four (hyperbolic) “Evil” Es of software
  - Software is everywhere - it’s always all around us
  - Software is essential - it’s a common requirement of navigating the world
  - Software is elaborate - but it doesn’t look it!
  - Software is expensive - and keeps getting more so!
- I want my students able to navigate these “Evil Es” during and after college, and not feel lost

1.5 Purpose

- Follow the liberal arts mission of creating well-(tech)-rounded students

  - Expose students to more alternative tools
  - Help students see the similarities, differences, and quirks of each tool
  - Ensure that when students encounter new software they can adapt easier
- Support projects and software that are free in a time of increasing prices
  - Push back against reliance upon subscription-based tools
  - Show students how to build their portfolio and skill set without incurring additional financial burden
- This is **not** an attempt to insist upon **only** using open-source software

2 Vocabulary of Software Availability and Pricing

> **Important**
>
> There's a lot of different ways to describe software price models, so be discerning when looking at options!

3 Examples of Integration

> **Important**
>
> There are several routes to integration of open-source tools, but all focus on flexibility and agency!

4 Connection to Tech Literacy

> **Important**
>
> There are several routes to integration of open-source tools, but all focus on flexibility and agency!

5 Advantages and Challenges

> **Important**
>
> Introducing open-source tools brings benefits and drawbacks, but the good outweighs the bad!

5.1 References

Allaire, J., & Dervieux, C. (2025). *Quarto: R interface to quarto markdown publishing system*. https://github.com/quarto-dev/quarto-r

R Core Team. (2025). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. https://www.R-project.org/

Xie, Y. (2014). Knitr: A comprehensive tool for reproducible research in R. In V. Stodden, F. Leisch, & R. D. Peng (Eds.), *Implementing reproducible computational research*. Chapman; Hall/CRC.

Xie, Y. (2015). *Dynamic documents with R and knitr* (2nd ed.). Chapman; Hall/CRC. https://yihui.org/knitr/

Xie, Y. (2025). *Knitr: A general-purpose package for dynamic report generation in r*. https://yihui.org/knitr/