Consequences of unhappiness while developing software

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based on slides by @SMEasterbrook und @ethanw
Happiness = Affect_{positive} - Affect_{negative}
Happiness = Max(Affect_{positive}) \ - \ Min(Affect_{negative})
Scope

**CAUSES**

\[
\begin{align*}
X & \rightarrow Y \\
X & \rightarrow Y
\end{align*}
\]

**CONSEQUENCES**
Scope
Questionnaire

Demographics
- Age, gender, nationality, ...
- Self and software development
- Others and software development

Happiness
- Scale of Positive and Negative Experiences

Open-ended
- Causes happiness
- Causes unhappiness
- Consequences happiness
- Consequences unhappiness
GitHub

Population
# Our participants

| 181 Responses | For consequences of unhappiness only, after data cleaning |
|---------------|----------------------------------------------------------|
| 95% M, 4% F, 1% O | Low female participation |
| 1984 mean year birth | SD = 8.27, 1986 median |
| 45 countries | |
| 78% professional developers | 7% students, 13% other roles |
| 8.22 yrs experience with software development | median 5 |
Qualitative coding

- 254 codes
  - Open, axial, selective
  - Agreement
  - Individual developer
  - Weekly meetings

- 49 consequences
  - 16 categories

J. M. Corbin and A. L. Strauss, *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 3rd ed. London: Sage Publications, 2008, vol. 2nd.
Consequences of unhappiness
External

Delay

Low Productivity

Low CODE Quality

Process

Discharging CODE

Broken Flow
“In both [negative experiences] the emotional toll on me caused delays to the project"
LOW

PRODUCTIVITY
"In these instances my development tended towards immediate and quick 'ugly' solutions"
LOW

Function x() {
   
   ___
   ___
   ___
   ___ X
}

CODE QUALITY
"I have deleted entire projects to start over with code that didn’t seem to be going in a wrong direction"
“things like that [of unhappiness] often cause long delays, or cause one getting out of the flow, making it difficult to pick up the work again where one has left off.”
Internal

MENTAL UNEASE
OR DISEASE

LOW MOTIVATION

LOW COGNITIVE
PERFORMANCE

WORK
WITHDRAWAL
"the negative feelings lead to not thinking things through as clearly as I would have if the feeling of frustration was not present"
"I may sometimes begin to question my overall ability to be a good programmer"
"[the unhappiness] has left me feeling very stupid and as a result I have no leadership skills, no desire to participate and feel like I'm being forced to code to live as a kind of punishment."
"you spend like 2 hours investigating on Google for a similar issue and how it was resolved, you find nothing, desperation kicks in. It clouds your mind and need to do other things to clear it"
Recommendations: practitioners

‣ Leaders

‣ Team members

  • Foster happiness by limiting unhappiness

  • Improvements at individual, artifact, and process levels
Implications: researchers

• Basis for future research
  • Exploration of relationships (including assessment)
  • Interventions and ethics
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