Identifying Predictors for Code **Highlighting** Skills

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func (d *glusterfsDriver) saveState() {
    data, err := json.Marshal(d.volumes)
    if err != nil {
        logrus.WithField("statePath", d.statePath).Error(err)
        return
    }

    if err := ioutil.WriteFile(d.statePath, data, 0644); err != nil {
        logrus.WithField("savestate", d.statePath).Error(err)
    }
}
func (d *glusterfsDriver) saveState() {
    data, err := json.Marshal(d.volumes)
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}
What is needed to become a competent programmer?
What are competencies?
“context-specific cognitive dispositions that are acquired and needed to successfully cope with certain situations or tasks in specific domains”  
Koeppen et al. 2008
How can competencies be described?
Structure Model

Level Model

Koeppen et al. 2008
A competency structure model for object-oriented programming
Object-Oriented Programming

- Data structure
- Class & object structure
- Algorithmic structure
- Mastering representation
Which influence do competencies in the dimensions *class & object structure* and *mastering representation* have on the ability to identify concepts in a given source code?
16 Schools

211 Students

55% 20% 25%

ø 16.9 (SD = 1.95)
R² = 0.38***

R² = 0.54***

R² = 0.56***

R² = 0.62***
Implication

Students might understand OOP concepts and Syntax, but are struggling with interconnecting both areas and therefore could be unable to read and understand code.

⚠️ Caution: Due to violation of normal distribution our results are only valid for the presented sample. (Please replicate!)
Next Steps

- Does “objects first” or “objects later” influence the outcome?
- Can we replicate the results?
- Can students transfer their skills to new programming languages?
Graphics

• All emojis designed by OpenMoji – the open-source emoji and icon project. License: CC BY-SA 4.0
Literature


