

# Mining MOOCs for Software Testing Knowledge

Author: Neda Džiugaitė n.dziugaite@student.tudelft.nl | Supervisors: Baris Ardic & Andy Zaidman



## 1. Introduction

- Zhu and Zhang identified that one of the problems in software testing education is that formal education does not align with the industry demand [1]. Massive Open Online Courses (MOOCs) can be one of the solutions to bridge the gap between formal education and industry expectations.
- The aim of this paper is to provide insight into how MOOCs contribute to software testing knowledge and education.

## 2. Research questions

- **RQ1:** What are the key aspects of software testing MOOCs?
  - **RQ1.1:** What information is provided for the user before starting a MOOC?
  - **RQ1.2:** What are the entry requirements for software testing MOOCs?
  - **RQ1.3:** What teaching techniques are most common in software testing MOOCs?
  - **RQ1.4:** What are the most common software testing concepts discussed in MOOCs?
- **RQ2:** Do the concepts taught in MOOCs align with what is being taught in universities?
- **RQ3:** Do the concepts taught in MOOCs align with what the industry expects from software testing practitioners?

## 3. Methodology

- Considered only dedicated software testing courses.
- Courses collected from 7 providers.
- Selected at most 3 courses from each provider and then selected additional 10 courses for RQ1.4.
- Resulted in 13 courses for the first 3 questions, and 23 for the fourth one.

## 4.1 Results

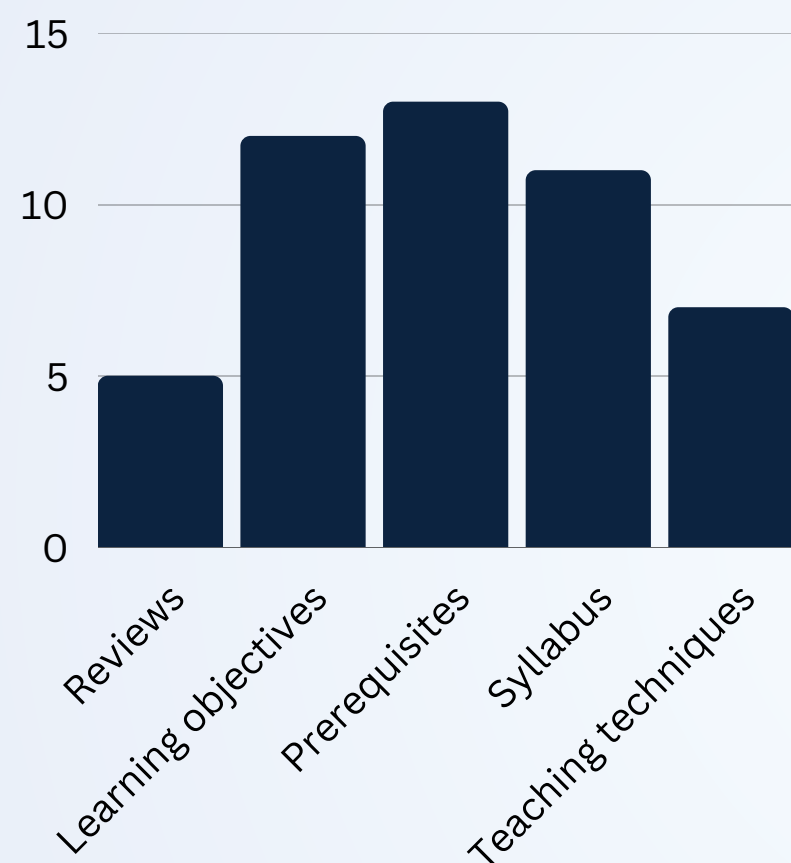


Figure 1: Results of what is presented for users in the course descriptions of software testing MOOCs.

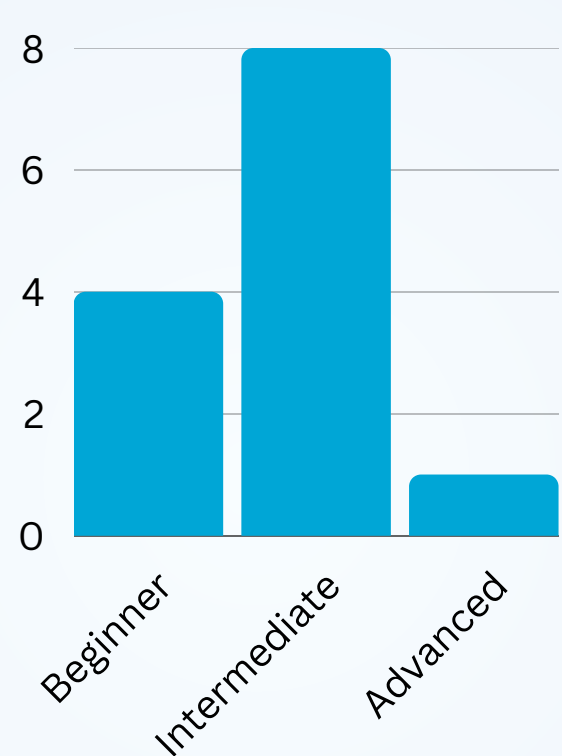


Figure 2: Results of the entry level of software testing MOOCs.

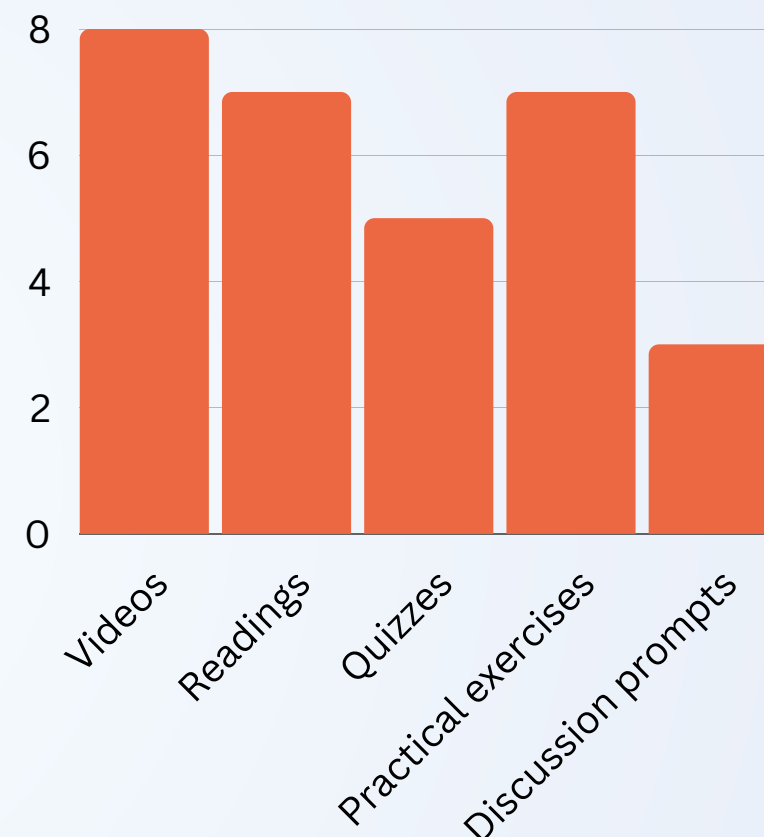


Figure 3: Results of the teaching techniques found in software testing MOOCs.

## 4.2 Results

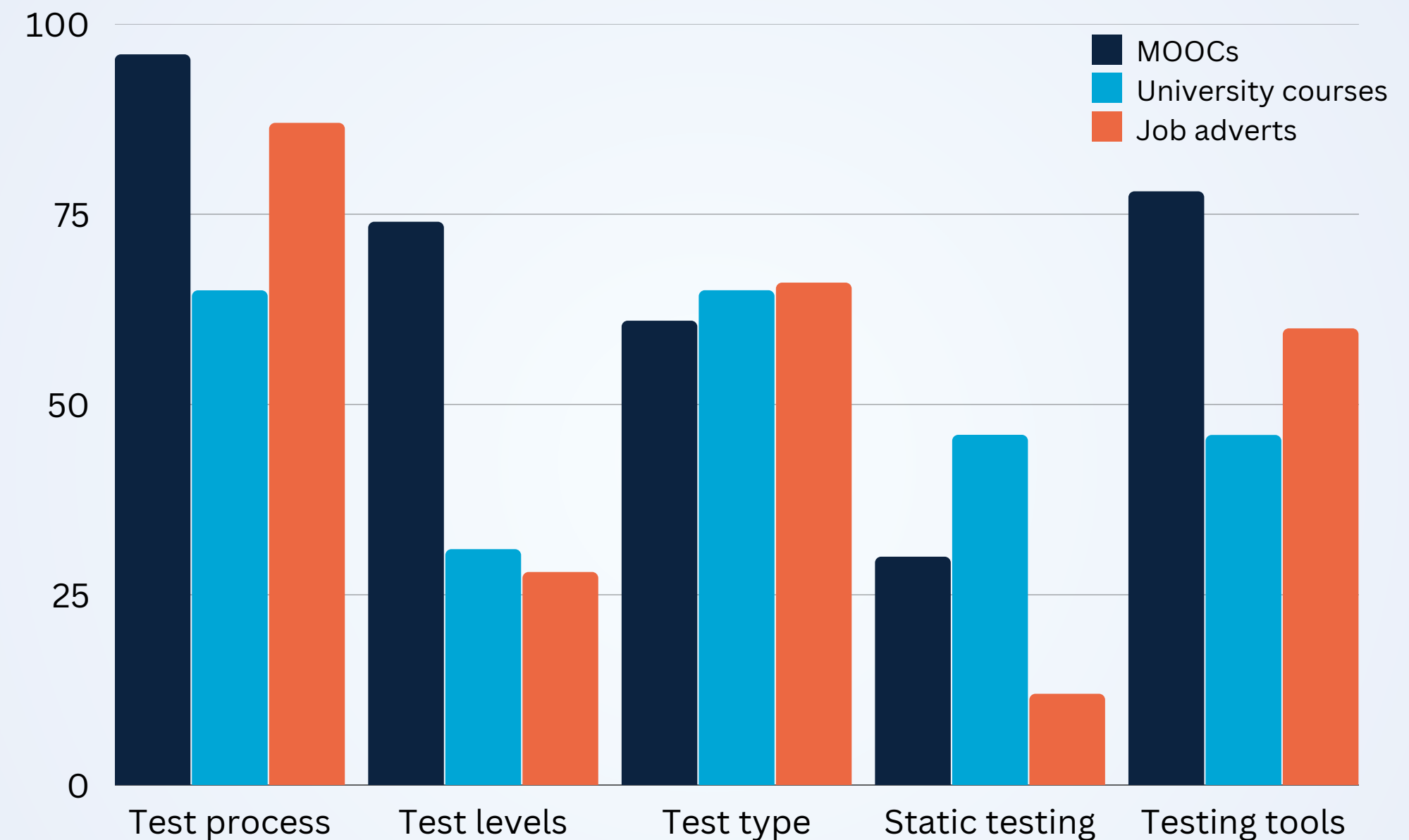


Figure 4: Results of the concepts discussed in software testing MOOCs, compared with what is taught in universities [2] and to software testing job advertisements [3], categorized using the taxonomy of software testing skills [3].

## 5. Discussion & Conclusion

- Software testing MOOC on average tends to cover a larger variety of topics than is covered by a university course or is expected of a single practitioner.
- MOOCs align with the industry expectations in terms of content. We found that the most popular keyword (automation), tool (Selenium) and testing type (Regression testing) in MOOCs are consistent with the most required by the industry [3; 4; 5].
- Since there is alignment with the industry expectations, the utilization of MOOCs is a possible solution to address the challenges of software testing education.

## References

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