Universidade Federal do Pampa

CODING DOJOS IN LEARNING OF PROGRAMMING

This briefing reports undergraduate students' perspective on the use of Coding Dojos in collaborative learning of programming, and it also reports what did work and what did not work by Dojo Master's perspective.

FINDINGS

Results and project learning lessons were compiled and analyzed according to two viewpoints (participants and Dojo Master).

Participants Perspective:

- The study reveals that participants generally enjoyed working together and receiving tips while they were programming. Also, participants especially liked to support or to teach each other, and they prefer to work together than alone.
- Shyness must be addressed, since several participants felt embarrassed while coding in front of the others.
- Participants tended to agree that they learned more in Coding Dojos than in traditional lab classes. They have strongly agreed that Coding Dojos are a fun option for programming learning.

These two tables below present main categories extracted from participants' perspectives.

Table 1: Categories for question “Tell us what you enjoyed the most on Coding Dojos”.

Category	N	%
Working in a team/collaborative environment	10	33
Learning new programing languages	7	23
Pleasant and funny environment […]	4	13
Applying programing knowledge	3	10
Improving interpersonal relationship	2	7
Encouraging fast thinking	4	3
Learning other programing topics	4	3
Pilot/co-pilot dynamics	4	3
Tutor’s knowledge generated safety and willingness to opine	4	3

Table 2: Categories for question “Tell us what you enjoyed the less on Coding Dojos”.

Category	N	%
Shyness[…] to program in face of group	4	40
Many meetings on same language […]	2	20
[…] demand of advanced knowledge	1	10
Few people knew python […]	1	10
Professor solved most of the problem	1	10
[..]problem wasn't solved the best way	1	10

Dojo Master Perspective (what did not work):

- Too many participants turned Coding Dojo in Randori format less productive. Also, shy participants did not participate of discussions and several people went away without to coding.
- Traditional programming cycle duration, 5-7 minutes, weren’t enough to pilots implement their ideas.
- Competition isn’t encouraged in Coding Dojos. In some meetings, competitive behaviors have occurred and we had to interrupt coding cycle to clarify Coding Dojo goals.
- Participants presented an initial resistance to write tests before coding, but negligence of TDD steps is common for novices and, meeting after meeting, participants felt more confident to accept TDD mantra.
- Some participants didn’t say aloud what they were thinking or doing, and it hinders the understanding for others.
- Despite being a traditional teaching technique, we had to perform training for TDD practices by workshops to increase participants confidence.
- Only two programming languages were adopted on Coding Dojos during the entire project. We noticed that it might contribute to participants abandonment.

Dojo Master Perspective (what did work):

- Abandonment at first meetings had been expected, but we figured out that active participants had been stimulating friends and classmates and bringing them to Dojos.
- Dojo Master or pilots interrupted coding phase in some situations to perform technical discussions with participants. Whiteboard was an important resource and it was collaboratively used for explanation.
- We observed that participants' engagement and contributions had progressively increased.
- Dojo Master not only organized and mediated meetings, but he also participated of coding cycle. This attitude made him more close to participants by turning meetings less formal.
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Keywords:

Coding Dojos
Collaborative Learning
Computer Programming
Test Driven Development

Who is this briefing for?

Software engineering academics and practitioners who want to make decisions about learning of programing based on evidences.

Where the findings come from?

All findings of this briefing were extracted from the experience report conducted by Rodrigues et al.

What is included in this briefing?

Main findings of the original experience report based on participants and Dojo Master’s perspectives.

What is not included in this briefing?

Detailed descriptions about the project, techniques and methods as well as Coding Dojo practices.

ORIGINAL RESEARCH REFERENCE

Peterson Luiz da R. Rodrigues, Luiz Paulo Franz, Jean Felipe P. Cheiran, João Pablo S. da Silva, and Andréa S. Bordin. ***Coding Dojo as a transforming practice in collaborative learning of programming: an experience report***. Proceedings of SBES’17, Fortaleza, CE, Brazil, September 20–22, 2017. DOI: 10.1145/3131151.3131180.