# Agile Testing Annotated Bibliography

Chris M. Thomas
Division of Science and Mathematics
University of Minnesota, Morris
Morris, Minnesota, USA 56267
thom3706@morris.umn.edu

## Keywords

ACM proceedings, LaTeX, text tagging

## 1. SENIOR SEMINAR PAPER GOALS

The goal of this paper is to explore what entails agile testing and its apparent effectiveness in the practical coding world. Specifically I would like to explore the current implementations of agile testing and see how it has evolved overtime, and how agile testing compares to conventional testing. My articles: [2, 8, 6, 3, 9, 5, 7, 1, 10, 4]

## 2. KEY POINTS

1. Testing is very costly and not always effective for industry so optimizing testing practices is very important. This was a key point that was brought up in multiple papers, some of which even stated that prior research showed that up to 50% of all development funds was invested in testing [1, 5]. This point is important for understanding the relevance of this paper and this point is also useful for putting testing advantages and disadvantages in a useful context. One article in particular [1] really highlights this but many of the other articles touch on it in one way or another.

2. TDD is the main form of Agile testing This is acknowledged in almost every article I found on the topic and though few mention other forms of testing the bulk of the interest and detail seems to be focused on TDD, usually in its original form within Extreme Programming. TDD is heavily mentioned in the following articles [2, 3, 4, **?**, 5, 10]

3. TDD has inconclusive results tied to it This key point was brought up a lot in papers when explaining TDD itself or the results of TDD experiments. for example some papers say TDD makes a product take longer to produce [6, 3] while others say it decreases the overall development time [5]. Other data points that I ran into that had this same indecisive data problem was whether TDD improved code quality, improved customer satisfaction, and/or created less buggy code. Perhaps the only agreed on data point is that TDD tends to produce a massive increase in code coverage and test size (no articles disputed this point and many reputed it). In particular papers [3, 4, 5] seem to spend some time attempting to explain this phenomena and all agree that some of the major reasons they give for why this data is all over the place is A. TDD is actually hard to implement correctly, B. TDD is a very vague term that is not well defined so many different testing methods are done under the same name.

4. New TDD approaches are evolving to help generate goals to promote customer satisfaction and reduce unneeded complexity. This key point is brought up by only two articles directly, [**?**, 3] but it was referenced indirectly in other articles. Although there is not much backing for what this point is I think it is an important point to bring up as it is showing the future of agile testing.

## 3. OUTLINE BEGINS HERE

## 4. INTRODUCTION

Here I plan to talk about the idea of agile testing and why anyone should care. I also plan to lay out a road map here for the rest of my paper.

## 5. SOFTWARE TESTING

This section is intended to give the reader a background on testing and why they should care about testing in general.

### 5.1 The Importance of Software Testing

Here I plan to talk about the large role that testing plays in the software world

### 5.2 The Goals of Software Testing

Here I plan to talk about what one wishes to achieve when testing

### 5.3 Current Implementations of Software Testing

Here I plan to discuss basic testing methods and touch on agile testing methods near the end.

## 6. AGILE IDEOLOGY

This section is intended to give the reader a set of background information on Agile.

### 6.1 What is Agile?

Here I plan on explaining what Agile coding means and how I am choosing to define agile in this paper.


*UMM CSci Senior Seminar Conference, December 2013* Morris, MN.

## 6.2 Communicating With the Customer

Here I want to do a quick mini section highlighting this point as it will become relevant later on.

# 7. TDD

Here I plan to talk about TDD and how it is the main testing form for agile development

## 7.1 what is TDD

An explanation of how TDD is a blanket term and this essay it will refer to the original TDD idea that was developed with Extreme Programming.

## 7.2 The Advantages/Disadvantages to TDD in an agile context

Here I will go into detail about the observed advantages and disadvantages of TDD in an agile context.

## 7.3 The Challenges of TDD

Here I will go into exploring how many companies are finding TDD exceedingly challenging to implement and what challenges they often run across.

# 8. RECENT EVOLUTION'S FROM TDD

Here I plan to talk about newer forms of TDD like testing that have emerged from TDD and why they are potentially more effective at solving the problem

## 8.1 BDD

Here I plan to explain what BDD is and why it may be better then TDD.

## 8.2 ATDD

Here I plan to explain what ATDD is and why it may be better then TDD.

# 9. CONCLUSION

Here I plan to talk about the main take away points of this paper

# 10. REFERENCES


[1] A. Bertolino. Software testing research: Achievements, challenges, dreams. In *2007 Future of Software Engineering*, FOSE '07, pages 85–103, Washington, DC, USA, 2007. IEEE Computer Society. *Validity: Very Good. This seems like a good article to read on testing in general. If this paper explores testing like I think it will, it may help set the tone of the entire paper and clarify important traits in testing. I think this will be a key background paper.*

[2] B. George and L. Williams. An initial investigation of test driven development in industry. In *Proceedings of the 2003 ACM symposium on Applied computing*, SAC '03, pages 1135–1139, New York, NY, USA, 2003. ACM. *Validity: Very Good. This article is a bit old but well cited and again provides more data of comparing agile testing to other standard testing techniques. Due to this articles age I donâĂŹt think it will ever be a core source. If it has any use i think it will be as a background mention.*

[3] S. Hammond and D. Umphress. Test driven development: the state of the practice. In *Proceedings of the 50th Annual Southeast Regional Conference*, ACM-SE '12, pages 158–163, New York, NY, USA, 2012. ACM. *Validity: Good. This short article seems useful on getting the current scoop on Agile testing. I do not think that it will be a main paper unless it is very dense or relevant but I think it would serve well as a support or background paper.*

[4] T. Hellmann, A. Sharma, J. Ferreira, and F. Maurer. Agile testing: Past, present, and future – charting a systematic map of testing in agile software development. In *Agile Conference 2012*, AGILE 13, pages 55 – 63, 2012. *Validity: Good. This article I think will be a useful summary article on agile testing. This article would make a useful background article. University may not be able to access this article, in that case this article will be ignored. .*

[5] V. Kettunen, J. Kasurinen, O. Taipale, and K. Smolander. A study on agility and testing processes in software organizations. In *PGood/Questionableroceedings of the 19th international symposium on Software testing and analysis*, ISSTA '10, pages 231–240, New York, NY, USA, 2010. ACM. *Validity: Very Good. This article seems very promising as its a recent paper that has research of the advantages of agile testing compared to conventional testing. The writers seem very credible in the field. This paper is likely to be a core paper unless its actually poorly written or doesnâĂŹt mesh well with other papers.*

[6] O. A. L. Lemos, F. C. Ferrari, F. F. Silveira, and A. Garcia. Development of auxiliary functions: should you be agile? an empirical assessment of pair programming and test-first programming. In *Proceedings of the 2012 International Conference on Software Engineering*, ICSE 2012, pages 529–539, Piscataway, NJGood/Questionable, USA, 2012. IEEE Press. *Validity: Very Good. This article seems useful as it is a modern research paper on the effectiveness of agile testing practices. That being said one of the main downsides of this article is that it splits its attention between TDD and Pair programming which is concerning.*

[7] J. T. Sawyer and D. M. Brann. How to test your models more effectively: applying agile and automated techniques to simulation testing. In *Winter Simulation Conference*, WSC '09, pages 968–978. Winter Simulation Conference, 2009. *Validity: Mediocre. This article I think would be useful due to how it covers actual goals and ideas agile testing in detail. This article has a potential to be a core paper due to its potential ability to define the main topic.*

[8] V. Schneider and R. German. Integration of test-driven agile simulation approach in service-oriented tool environment. In *Proceedings of the 46th Annual Simulation Symposium*, ANSS 13, pages 11:1–11:7, San Diego, CA, USA, 2013. Society for Computer Simulation International. *Validity: mediocre. This is a promising article that is very recent. This article I foresee as the best for seeing where agile testing may go in the future. I am concerned how relevant the focus of the article may be*

*to my paper so until I read it I am not sure what the role of this article will be.*

[9] M. Soeken, R. Wille, and R. Drechsler. Assisted behavior driven development using natural language processing. In *Proceedings of the 50th international conference on Objects, Models, Components, Patterns*, TOOLS'12, pages 269–287, Berlin, Heidelberg, 2012. Springer-Verlag. *Validity: Good/Questionable. If I use this article it will be important to analyze it for credibility. This article focuses on english language like BDD testing and the advantages of that. Can be linked to agile testing principles through customer developer interactions. Worried how well this paper will merge with others if it becomes a core paper.*

[10] D. Talby, O. Hazzan, Y. Dubinsky, and A. Keren. Agile software testing in a large-scale project. *IEEE Softw.*, 23(4):30–37, July 2006. *Validity: Good. This article is in many ways a toss up when it comes to usefulness. Its topic seems to be very relevant to my potential topic and the of a military installation would be heavily reliable. Unfortunately the age of the article is limiting. This paper I think will become a backup core in case other papers seem devoid of usefulness. For now though I think this article is going to benched due to its age.*