

Learning Journal

I do not have previous testing work experience, but I have taken a course at Åbo Akademi in Spring 2024. It also explored testing from different viewpoints, but the exercises focused on white-box testing, mostly on the unit level for developers. Thus, I am excited to revisit testing from an agile, and hopefully more of a tester's viewpoint.

Lecture 1 – Overview – 20.3.2025

The first lecture was a good reminder of the purpose of software testing: reducing costs and risks. It is easy to get stuck in the catching bugs view, but testing also creates valuable information for documentation and stakeholder satisfaction purposes.

Revisiting the different schools of thought made more sense this time, compared to when I took my other testing course, as I have been able to build more context and gain insight. One challenge for me in IT in general has been that there are different ways of talking about the same concepts. The school walkthrough set a good context base for this lecture.

I think the Amman & Offutt testing levels of testing goals were interesting, as I'd like to pursue a career in testing, and thus build a tester's mindset. I notice that I often have gotten stuck on the lower mindset levels while testing for an exercise purpose. I think this might also be a result of my lack of black-box testing experience.

Warm-Up Essay – Big Picture of Software Testing

James Bach's conference speech was an interesting take for me, who still lacks practical insight into both the testing and IT field in general. It highlighted how different schools of thought are visible in testing, as he discussed several approaches. As I have heard the criticism of certificates like ISTQB from other experienced testers as well, I have shifted my viewpoint of them. I think certificates are good to have but acknowledge not all are going to make me a better tester – there's more work to do for me in that area.

My biggest takeaway was Bach's thoughts on making the testing effort legible and visible. This is somewhat like my current occupation as a librarian, as many do not see the invisible work that goes into quality and services beyond the loaning of books. I think the shallow-end comparison was valuable, as we often struggle to see beyond the surface when we look at other people's work.

Lecture 2 – Perspectives to Testing and QA – 25.3.2025

This lecture was very helpful in structuring my thoughts on the different schools of thought. Even if we touched upon them in theory in my previous course, I have noticed that I have not memorized them well enough or been able to relate them to each other. As many of Åbo Akademi's software courses have a safety-critical approach, we've used different formal methods. After starting to explore testing after my previous course, I found myself in the standardization school and pursuing an ISTQB certificate. I will still take the foundation level exam soon, but I feel like it is good that I got the tools to analyze it critically during my learning period.

At this point, I have been pleasantly surprised by how well this UTU course seems to complement the ÅA course, and I am excited to do the exercises to get better shaken out of the formal school box I have felt a bit stuck in.

As I am interested in automation as well, I appreciated the comparisons of manual and automated testing. I did not expect that the automation costs generally would exceed the manual costs as time passes, but it makes sense as there is a lot to manage in test suites.

Lecture 3 – Fundamental Concepts – 27.3.2025

This lecture covered many of the things I learned in the previous course I took. I can see that they are sometimes too formal, but I am still happy that I have learned coverage criteria, boundary value analysis, predicate coverage, and other concepts well. I appreciate having this knowledge to refer to when taking this course, but the agile approach will probably be more useful to me, as I wish to become a tester and would thus probably not primarily write unit tests.

Essay 1 – Overview of Agile Testing

I added some reflections to the essay as well, but I appreciated these chapters very much and ordered a copy of my own. It feels like, at least in the software courses I have taken, that many wish to primarily become developers, and often this is the focus when agile methods have been discussed. Seeing how testers can work in agile teams has helped me build my identity as a tester in currently ongoing work recruitments for tester roles.

Guest Lecture 1 – ACT2LEAD - 1.4.2025

I attended Kari's and Marko's lecture last year when I took the testing course at Åbo Akademi. I was happy to notice that I already have a better understanding of testing than a year ago, as I felt it was easier to follow the lecture and relate things to my previous knowledge. Following experienced testers on LinkedIn, studying for certificates, and attending this course have been beneficial already.

The Add Context Transparency 2 Learn Enable Adapt Diverse methodology gives insight into best practices when leading testing. I think one of the bigger challenges professionally will be to get a sense of what is enough and when we are done testing, and ensuring testing is diverse.

Lecture 4 – Quality Concepts and Quality Systems – 3.4.2025

I have had difficulties grasping the nuance differences between quality management, assurance, and control. Management is on an organizational level, assurance on a process level, and control on a testing level.

I have previously thought a lot about standards and regulations, and their relation to the agile cycle. When I took my requirement engineering class, my younger classmates did not see why we had to learn anything else than agile methods, arguing whether gathering requirements and extensive documentation have a place in the rapid pace of agile cycles. Already then, I thought that health technology and other highly regulated fields would probably not bend as easily into agile cycles as building a social media application. Working with standards and regulations in an agile world is something I want to dive deeper into by searching for case studies.

Guest Lecture 2 – Revvity – 10.4.2025

I appreciated getting a view of the work of a tester in a safety-critical industry. As Kimppa stated there is no code to find life-threatening issues: all software has issues, but the severity of the issues can have very different consequences for the user. With testing, we can show the presence of quality, but we don't create it by testing. In Revvity's field of business, failure can mean not receiving the proper care, misdiagnosis, and death.

The ethical considerations were also interesting, like tweaking whether false positives or negatives are better for a particular situation. False positives can lead to the termination of healthy embryos, but false negatives on a born child can lead to sick children not receiving proper care. This is probably just one of many scenarios where ethics has to be considered in a quality process.

In this lecture, quality was explored beyond the software, and it served as a good reminder that quality requires effort from all levels of an organization. Thinking of Revvity, and their factory of medical devices, software development, and end-users at the hospitals, tracing the root cause of faults must be a real challenge.

Kimppa also put into practice the standards that were discussed in the last lecture, and the real-world complexity also includes operating globally, with different laws and regulations in different parts of the world. The need for proper documentation is apparent when it comes to regulations, but that requirements are locked had not occurred to me before.

Essay 2 – Quality Concept

I have previously taken a course in Software Quality at Åbo Akademi, and it also covered the software quality characteristics. I appreciated the opportunity to be able to explore some of these characteristics in the essay and relate them to testing practices. Software Quality was my first master's level course after completing just one year of bridge studies, and during that time I lacked a lot of the context to get the most out of that course. I will be revisiting that course's contents with the testing perspectives I am gaining in this course in the summer.

Lecture 5 – Agile Testing I – 15.4.2025

This is one of the perspectives that sealed my decision to enroll in this class. One main takeaway for me was how I should relate to the waterfall and V-model. I think this was discussed in my previous testing course as well, but I did not memorize this, and we did not cover agile testing in much detail, and mostly just in theory.

One key takeaway from this lecture includes putting bug fixes in sprint logs, as Bach also noted that we should be able to make testing visible and legible. I should also remember that TDD, ATDD, and other methods are not testing methods, but rather design and communication methods. ATDD on the other hand is considered testing, as it focuses on capturing the requirements.

The agile testing quadrants helped me to understand some of the spectrums in testing that have been harder to grasp, such as technology versus business facing and supporting team versus product critique, and how they relate to manual and automated testing. This course has helped me better understand the differences between manual and automated testing, and how they can complement each other.

Guest Lecture 3 – Trayport Oy – 17.4.2025

This guest lecture tackled interesting aspects such as complexity, automation, and AI. I was particularly interested in the automation aspects, as many beginner tester roles seem to focus on test automation. However, I do not know if the things I have been thinking of got answers, or if they can be answered in one mere lecture. I am curious about how test suites are designed and managed in practice, as they should be fast to run, easy to maintain, and catch as many bugs as possible. The systems under test also get more complex, and covering all modules might be resource-intensive.

One key takeaway for me was that automation tests functionality, not user experience. It is very apparent when stated. Usability is still better tested with exploratory testing. The terminology of flaky tests was also new to me, but the concept makes sense. Who trusts testing if the tests themselves are not reliable?

The layering illustration was beneficial as well. There is a lot of uncertainty in testing that has worried me but thinking of different test levels as a stack on top of each other, covering different weak spots, and forming a denser safety net is assuring.

Lecture 6 – Agile Testing II – 15.4.2025

It is beneficial that the materials link to the testing quadrants, as it was easier to relate to the exploratory testing and session-based testing knowing they are in Q3 business-facing tests. I have some difficulty grasping the simultaneous nature of ET, where learning, test design, and execution happen at the same time.

One lightbulb moment for me was that scripted testing is on the other side of the spectrum from exploratory testing. I think it is still hard to grasp different combinations, such as manual-automation, scripted-exploratory and how they relate to each other, or how they are used in practice. In addition to being stuck in the analytical school, I have probably been stuck in the scripting view of testing and noticed that I had previously struggled with the question of how I should know what I am looking for, especially in the beginning if I do not have a specification.

I also hope that context awareness comes with experience so that I can adjust my work objective based on which stakeholder group I am testing for. What information is useful about the quality differs from stakeholder to stakeholder.

After this lecture, the difference between “pure” ET and SBTM is still not very clear to me. Even if ET is unscripted, it is not unprepared, so there must be some techniques to manage ET as well. It seems like the key difference is time-boxing and reporting in SMT, but what this looks like in practice is still unclear. The exercises will probably be helpful.

I will go into more heuristics on my own. I also appreciated the Tabasco job interview task practice, as I think it prepared me for future interviews. I noticed that I did not think of the whole supply chain and know that I can extend the quality mindset outside of software as well, such as the product manufacturing, shipping and end-user experiences.

Exercise 1 – Unit testing

I have previously done some unit testing in other courses, and the exercises were quite extensive and focused on a high coverage level (line, method, class, mutation scores, etc.). I think it is hard to know what behavior is expected, like the negative number of items in the cart, whether it has some function where it is beneficial to have a negative representation. Also, I felt stuck in trying to achieve as much coverage as possible with the limited number of tests.

This probably simulates a feeling I will have to learn to deal with when working, as systems are very complex, and nearly full coverage is not possible.

I also noticed that I still feel a bit shaky on the nuance differences, as my integration tests were very similar to my integration tests. I have previously used Mockito when I explored unit testing and got insecure about whether my unit tests were isolated enough, as they did use several methods.

Exercise 2 – Functional Testing

BDD was a new concept for me, but I have seen Cucumber mentioned in testing events I have participated in (Mimmit Koodaa, etc.), and I was enthusiastic to try it out. The living documentation approach was an interesting concept, as I have mostly seen examples of more traditional requirements, often derived at the beginning and not very accessible to non-technical stakeholders. It would be very interesting to see a real-world case of maintaining and working with this kind of specifications. I also ordered Adzic's book for further studies on my own.

Cucumber was intuitive to learn and use, and the given-when-then structure was easy to follow. I was a bit unsure of how I should divide my code files, all in one file or multiple files for different tests. I was also a bit unsure of how to handle duplication in the step definitions when following the given-when-then structure for each scenario has overlap.

Exercise Session 1 – Exercise 2 – 28.4.2025

I felt that this was a good session for shaking me out of the analytical school of thought regarding my feeling stuck in thinking of code coverage. I felt very stuck in trying to think of branch coverage in Exercise 2 as well, even if I should have focused more on behavior. It might have been easier to think of behavior over code if I'd started with a specification and not by reviewing the code in Exercise 1.

Regarding the division of tests into different files, I still feel a bit lost, as my group mates had all taken different approaches to the task. Most had divided their code into a more detailed feature level. Where I thought of the cart as a feature, their features were more specific, like features as different cart functionalities.

These differences won't probably make or break testing, but it will be interesting to one day land a testing job and see what the things we learn look like in practice in a particular organization.

Exercise 3 – Exploratory Testing

When I started to do this exercise, I still felt a bit insecure about whether I had grasped what I was supposed to do. After all, this was exactly the kind of testing experience I was hoping for in this course.

I enjoyed writing this essay, as I felt that I got some good perspectives on the continuum of exploratory testing and scripted testing. I think that this scripted testing is something I have seen mostly in different courses, and it might be why I have felt stuck without a specification like in tasks like exercises 1 and 2. The exploratory testing practice is something I have lacked.

It was also interesting to deep dive into one tester's views on exploratory testing, as I found many insightful findings by Maaret Pyhäjärvi. I think her take on the necessity of succeeding in automated testing requires exploratory testing practices helped me see the complexity of the different approaches, rather than seeing them as opposites.

While doing the exercise, I noticed that in my mission 1 general exploration of the site bled out, and once I started mission 2, I noticed that I had already covered many of the angles and scenarios I wanted to cover in mission 2.

Exercise Session 2 – Exercise 3 – 5.5.2025

I seemed to have grasped the different scenarios correctly – a Föli user who uses a familiar line daily will probably use the real-time stop information, the other scenarios might focus more on the travel planner feature. I had a brief facepalm moment when I noticed I never opened the real-time bus stop view, as I probably assumed that it is the same as on mobile phones when I use them daily. This was an important reminder to not make assumptions, and that there might be big differences in the functionality on different devices.

Lecture 7 – AI in Testing & Tester's Mindset – 8.5.2025

The mindset section was interesting, and I appreciated the brief explanation of how they relate to testing in the slides. I have not thought of how AI can complement me as a tester this broadly before. I often use LLMs to gain some initial understanding of what I am doing but could integrate them into the whole process. I have probably been too skeptical of LLMs, as AI does not really “think” or “understand”, but the later upgrades in ChatGPT allow for finding sources for its claims, which I as a librarian value.

The Testing of AI/ML systems was a brief overview of some of the AI quality characteristics that could be considered. I'd like to see a whole course on this topic. As I was transferring my handwritten lecture notes to printed slides, I had IEEE Xplore open in a browser to search for articles. I will spend more time looking for studies done on AI quality characteristics, as I am still looking for a thesis topic that combines my interest in testing and AI. The testing of AI agents' aspect is also interesting, but there does not seem to be much literature on that topic.

I have been interested in testing AI-based systems but have struggled to find literature beyond how to leverage AI in the testing process in general. Thus, this lecture set many thoughts into motion, especially regarding AI agents. I have been hoping for an AI winter for a while, as the development is currently so quick that the lawmakers and general public lack AI literacy skills.

We would need time to educate ourselves on what the current development means for not just quality and our everyday lives, but also on the level of laws and regulations.

The Testing with AI section was brief, but the future benefits and AI application tables on the last slides will be beneficial for further information searches. I find it somewhat difficult to relate the changes brought to testing, as I feel my prior testing knowledge is still in its early stages. From what I have tried to piece together from following testers online, I have the sense that we are moving towards the “Testing Reimagined”. It would be ideal to get into a testing role, to get to see the development of AI in testing in from its early stages.

Exercise 4 – Session-based Testing

As with the other exercises, writing an essay was very beneficial to process the articles. In addition to the articles, I got to explore some other viewpoints when I searched for SBTM experiences in an agile context, and how a tester uses ChatGPT in testing.

It was beneficial to have guided tour and charter sessions, as I still felt a bit insecure when I started the tasks. This let me focus on learning Xray and familiarizing myself with working with the charter. Xray felt very intuitive, but I did not explore more than the notes and screenshots.

Writing the PROOF report, I was very unsure of the level of detail that was expected. This is probably something that will be easier, as I start to work and get to write more reports and read other people’s reports as well.

I think it was beneficial to do a more classical exploratory testing exercise before moving to techniques to handle this. Before doing this exercise, I had difficulty grasping the practical differences between ET and SBTM. I also noticed that doing a mind map of the site during a touring session could have saved me from the oversight of never opening the real-time departures view in Exercise 3.

Exercise Session 3 – Exercise 4 – 12.5.2025

In this feedback session, my group shared their charters and PROOF reports with the other group members for comparison. Seeing many reports at once was beneficial, as it was good practice to grasp findings quickly. As I have previously felt, balancing between reporting all findings and maintaining a short format has been something I contemplated earlier while doing the assignment. The shorter reports were quicker to read, but I also felt that the other reports were vague, I did not always get a sense of what was done in a session, and the probably very systematic work done by some of my peers was not communicated through the report.

While we discussed the mind maps, I think the notion of feature/function versus concept was interesting. I noticed that I have been stuck at the concept level, not mapping the functions that the users can do, but rather limiting myself to the menu items. I will keep this in mind when I do my next mapping tour. It was also nice to hear that one can use mind maps to estimate

coverage, as I have often felt hung up on thinking of coverage and how to do it without code access.

I also noticed that I might have been too early in analyzing findings during the sessions, rather than doing it in the reporting. I look forward to receiving feedback on my exercise, as I do want to work on the balance of reporting concisely yet being able to communicate some real substance.

Essay 3 – Agile Quality Management

I have previously studied organization and management courses, but it has been a while since then. I appreciated the possibility of gaining more insight into how agile relates to a more traditional approach, as more IT-specific management styles were not part of studies in Economics, at least in the 2010s. I tried to go beyond the provided article with this essay as well, as I needed to brush up on Deming's theories.

The most interesting finding was understanding that Deming's quality perspective is so much broader than the agile or lean ones. As still I lack real IT field experience, I have only seen Agile in a textbook context. I feel that this essay challenged me to see Agile from a fresh perspective, and while the given essay we reflected upon did not go into too much detail, it provided enough to make my information searches more efficient.

I also pondered on Agile's relation to requirements and found the proposed Agile + Lean approach proposed by Krehbiel & Miller interesting. I think I will have to add the role of requirements to a list to further investigate, as I am still interested in how Agile is used in safety-critical areas with a lot of regulations. Krehbiel & Miller suggested that requirements should be mapped as user stories, but it would be interesting to see more examples of how companies like Revvity work with requirements.

Essay 4 – AI in Testing

This essay topic was one of the most anticipated topics of the course for me. As a junior tester trying to break through, there is a lot of pressure not just to comprehend the traditional aspects of software testing and what they look like in practice, but also to foresee what and how rapid changes AI advancement is bringing to the field. I do not know whether or not it is assuring that there still doesn't seem to be as much literature on the topic as I expected or not, but it seems like one can get on the wagon still.

One of the main takeaways from writing the essay was the notion of splitting validation into initial and continuous validation, which makes it seem like quality assurance will have an even bigger role in the future, as Ruuskanen predicted during the guest lecture.

I have appreciated the essay form, as it has challenged me to try and find more articles and information on my own. During this essay, I looked at research publication databases, blogs, and articles and reflected on podcasts I have listened to. I must admit I had difficulties in

limiting myself on this topic, as comparing the lecture materials, the literature survey, and other sources took me deeper and deeper into a rabbit hole. I will probably digest the information explored in these past few days for weeks before I return to the databases for some searches of my own, as I am looking for a thesis topic that combines testing and AI, preferably testing of AI-based systems, rather than testing with AI.

Conclusions

I am very happy about taking this course, even if I did take a course at Åbo Akademi previously. During this course, I have received multiple great literature recommendations (I expect *Specification by Example*, *Lessons Learned in Software Testing*, and *More Agile Testing* to arrive from the bookshop soon), and through the exercises, guest lectures, and course materials I have gained a lot of interesting people to follow on LinkedIn. I have gained daily doses of testing in my LinkedIn feed and this course has helped me to relate them to different schools of thought and be critical of posts. Surprisingly many posts in my feed still focus on the lower testing levels and see testing as finding bugs.

My YouTube recommendation feed was also elevated from a testing topic perspective, as I have searched for multiple topics and podcasts, such as Crispin's and Gregory's podcast and conferences.

I have reviewed the materials from the course I took last year and feel like this course felt like a natural extension of the Åbo Akademi course I took. I very much appreciated that this one had the tester in focus, rather than the developer even if they covered the same topics to a degree.

Before this course, I applied for a tester traineeship and managed to get to a task round in the interview process. That was when I noticed how limited I was to the analytical and standardization schools, in addition to limiting myself to seeing testing as scripting. It was also apparent that I lacked the skills to report this kind of testing, even if I found several bugs by exploring. During this course, I have been able to understand that I should have used a session-based exploratory approach for that task, with both manual and some automated testing.

I feel that this course helped me take my previous software quality and testing courses by revisiting topics that I have previously learned about. Especially the hands-on approach and multiple essays helped me put what I had previously felt hard to grasp into graspable practice. I have understood the theory but often found myself wondering what everything looks like in practice.

As a conclusion, I feel like I got some much-needed direction and drive from this course. It helped me bridge the gaps in my previous knowledge and as a side-effect, I got into a nice software testing community online. I have been extremely happy with the automatic JOO-study right for IT students at the Turku universities' IT departments during this academic period.

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