



Agile for Course Design

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Agile Method

- ▶ Agile is a project management method originally for software development.
- ▶ Agile is based on the Lean Manufacturing System developed by Toyota.
- ▶ Agile allows for products to be created in a quick and efficient manner.
- ▶ Agile allows for change during production.
- ▶ Agile is a team approach to product creation.
- ▶ The ideal conditions for Agile is an open office where team members have easy access to each other.
- ▶ Product owners are actively involved in the team and design.



Lean Manufacturing



- ▶ Originally designed by Toyota Manufacturing, their goal was to have a “just-in-time” system for car manufacturing.
- ▶ Lean Manufacturing has the objective of fulfilling orders in the quickest and most efficient way so the order can be delivered to the customer as quickly as possible.
- ▶ This system was developed with two concepts in mind: Automation with a human touch (jidoka) and Just-in-Time.
- ▶ Jidoka means when a problem occurs, equipment stops immediately, preventing defective products from being produced.
- ▶ Just-in-Time means only what needs to be produced for the next process is produced so a continuous flow is maintained.
- ▶ Agile has used both of these concepts in its creation so the best product is delivered to the client in a timely manner.




The Agile Team

- ▶ The leader or Scrum Master—Head of the Agile team, the coach, project/program leader
- ▶ The Agile Team—The developers, or instructional designers, who will be creating the product
- ▶ The Product Owner—Defines the requirements and product backlog; grooms and prioritizes user stories for readiness
- ▶ The Stakeholders—Person who the product owner reports to at the school or business
- ▶ Tribes—The different business units and stakeholders within the business



Key Attributes of an Agile Team

- ▶ Accountability—Team members are held accountable for their work by their members
 - ▶ Teamwork—The team works together, each member using their talents for the content development
 - ▶ Adaptability—The team uses their own skills to make decisions and adapt to change quicker
 - ▶ Collaboration—The team shares their knowledge and experience with each other quickly and efficiently, making decisions together
 - ▶ Communication—Team members must work closely together, sharing information with each other and collaborating on the project
 - ▶ Empowerment—Each member using their own experiences and skills to empower each other to create great content
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12 Principles of Agile Course Development

- ▶ 1) Highest priority is to satisfy stakeholders through early and continuous delivery of valuable and effective course content
- ▶ 2) Welcome change, no matter where you are at in the development process, as the student and the course delivery/content benefit from change
- ▶ 3) Deliver effective content for review and evaluation frequently, with preference to shorter timescales
- ▶ 4) The team must work together daily throughout the project, including the stakeholder, learning management experts, and interactive design experts
- ▶ 5) Projects should be built around motivated individuals, giving the team the environment, support, and trust they need to get the job done
- ▶ 6) Use face-to-face conversation. This is the most efficient and effective way to communicate information



12 Principles of Agile Development cont.

- ▶ 7) Effective course material delivery is the primary way to measure progress
 - ▶ 8) Have sustainable course development. Sponsors, developers, and users should keep a constant pace indefinitely
 - ▶ 9) Good design and attention to technical excellence promotes agility
 - ▶ 10) Simplicity, or the art of maximizing the amount of work not done, is vital
 - ▶ 11) Self-organizing teams tend to make the best designs
 - ▶ 12) Regular team reflections help the team to become more effective by tuning and adjusting behaviors and actions accordingly.
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Scrum and the Agile Method

- ▶ Scrum is originally a term from rugby. The team huddles together to restart play. In Agile, scrum can be used as a way for teams to self-organize and make changes quickly.
- ▶ The Scrum Master oversees the design process and removes any obstacles to success.
- ▶ Scrum Master is often compared to a servant leader as they serve the team, not lead them.
- ▶ Agile/Scrum typically use sprints to complete each user story.
- ▶ Daily scrums, or short, 15 minute meetings, are held each morning. The team comes together each day where the work completed yesterday and the work for today are discussed. Any problems or issues are also discussed, including any the team may believe could happen. Scrum master works to solve any of those problems/issues during the day.



User Stories

- ▶ Defining requirements for parts of the course given to team requested by the client
- ▶ Each user story should indicate what the user is wanting and the benefit it will have to the overall project, user, or business.
- ▶ User stories will have notes added by the team, the priority level, and how much effort is estimated to complete the story. A team member accepts a user story and initials it as they take it to work on.
- ▶ Estimates for each user story are completed by the team to determine the effort of each story and the length of time to complete the task. Many ways exist for this process.
- ▶ Example: As an instructor, I want a final exam so that I can see what knowledge was gained by the students.



Sprints



- ▶ Sprints are determined by the Agile team.
- ▶ The amount of time to complete the user story, difficulty level, and priority of the user story are factored in to determine the length of a sprint and the order sprints will be completed.
- ▶ Sprint burndown charts can be used to display the estimated time versus the actual work completed during the sprint.
- ▶ Sprints end with the final creation from the sprint being approved by the product owner.
- ▶ To be successful, sprints must be completed on time, creation is complete and in working order, and can be tested.
- ▶ Sprint retrospectives are held. The main purpose of these is to determine how the team could change for the next sprint to be more successful than the last. Product backlogs are reviewed for any changes that need to be made and release planning.
- ▶ Product backlogs are a list of user stories for the design, maintained by the product owner



Product Demonstration



- ▶ Product demonstrations allow the user and product owner to see the design completed during the sprint and accept what has been created.
- ▶ This allows for immediate feedback of the design and critiques can be applied to the product and noted for additional sprints.
- ▶ Not all designs will be able to incorporate a product demonstration. Designers should be able to explain the designs importance to the overall course so users and product owners can understand and provide feedback.
- ▶ Time for testing, practice, and the product demonstration should be incorporated into the sprint estimate.
- ▶ Creating a standard time for product demonstrations can help to ensure each member is able to attend.



Team Science, Scrum of Scrums, and 30-Second Elevator Speech

- ▶ Team science is a way to have collaboration with a cross-disciplinary group of professionals from different fields. This can be effective with course design as experts from different backgrounds can contribute to what the learner needs and how to satisfy those needs.
- ▶ Team science helps courses become more effective since different backgrounds are reviewing and providing feedback. A good example is the Manhattan Project.
- ▶ Scrum of Scrums allows for representatives from different parts of the design process to come together so courses can be designed and created consistently. The scrum of scrums work together to ensure value in the design by removing obstacles, dependencies, and any conflicts.
- ▶ 30-Second Elevator Speech is a way for the team to sum up the project, its importance, and why things are being done with the Agile method in 30 seconds or less.




The Seven Wastes for Course Development

- ▶ 1) Overproduction—Giving students too much information, in turn not allowing them to search for the answers on their own; also including too many gadgets and trends in one lesson
- ▶ 2) Waiting—Wasting time during the design process waiting on an answer. Agile is designed to allow for a rapid response to questions. With course design, this could be time students are waiting before they can go to the next task, such as feedback or approval from a previous section.
- ▶ 3) Transporting—Delivery of work; the time it takes to deliver a course in class and give feedback on an assignment. This is easily avoidable with technology and eLearning.



The Seven Wastes for Course Development, cont.

- ▶ 4) Inappropriate Processing—Using material that no longer applies or assigning too much work for the class length
 - ▶ 5) Unnecessary Inventory—Material in a course that does not relate or flow seamlessly in the information
 - ▶ 6) Defects—Errors in quizzes, rubrics, or course layout that could hinder the delivery or distract from the learning
 - ▶ 7) Underutilization—Not allowing developers to contribute all of their strengths in the design or not including ways for student expression in course material
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Change in the Agile Method

- ▶ Agile accounts for change with its short sprints and daily meetings.
- ▶ Change can include changes in priorities, content, additions of new requirements, and/or changes to the sprint release plans.
- ▶ The goal is to satisfy the customer's specifications. If the customer finds a need for change, the change is welcome due to Agile's flexible approach.
- ▶ Within course design, issues that require change could be: pervasiveness of the curriculum; project creep; opposition to change; pressure to deliver the course; changes in staff; and technology issues.
- ▶ For change to be successful in project management, you need stakeholders to be engaged in the project; participation and collaboration from all; understanding of the context and issues prior to the project; control technology to meet stakeholder requirements and user experiences.



Iterative Approach

- ▶ An iterative approach views failure as a means of developing and improving rather than distressing. It encourages you to learn and grow from failure.
- ▶ With more education occurring in an eLearning environment, Agile, iterative approaches, and change allow for instructional designers to keep current with technology and changes. Also allows for changes during development rather than after.
- ▶ Course requirements can be defined over the development of the course rather than all at once.
- ▶ Ability to edit the course as many times as needed while also collaborating is beneficial for course development.
- ▶ Allows designers to see where their expertise are and change roles as needed throughout the course design.




Technical Debt



- ▶ Technical debt is defined as elements of a product or course that have not been completed but should have been already completed.
- ▶ Technical debt can be numerous and the list can be ever growing.
- ▶ The design team should ensure that technical debt does not hinder the sprint or overall course delivery.
- ▶ Examples of technical debt in course design include: rubrics, exams, course lectures, and activities, none of which have been fully created so their true value to the course shows .



Kaizen

- ▶ Kai means “Change.” Zen means “For the better.”
 - ▶ Kaizen is a philosophy of continuous improvement. Agile allows for the Kaizen way to work exceptionally well.
 - ▶ Kaizen is a series of small, gradual changes that should benefit the whole.
 - ▶ Kaizen helps us to focus on the process of designing a course so we can be efficient in the long run.
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ADDIE vs SAM

- ▶ ADDIE stands for “Analysis, Design, Development, Implementation, and Evaluation.” ADDIE is typically used for training development design.
- ▶ SAM stands for “Successive Approximation Model.” SAM is primarily for course design/development and focuses on a team approach.
- ▶ Traditional project management includes: preplanning/initiating; planning; analysis; execution and production; postproduction; and delivery.
- ▶ SAM is a more modern approach to course design where you plan, collaborate, and deliver
- ▶ eLearning needs more of an iterative approach rather than traditional as technology and user needs are always changing.
- ▶ ADDIE is like a waterfall approach where all the planning is down at the beginning and that plan is executed throughout the design process with change likely occurring after completion.



ADDIE vs SAM, cont.

- ▶ Effective learning takes place when learning is meaningful, memorable, motivational, and measurable.
- ▶ For SAM to be effective, a few criteria need to be met: iterative process; collaboration support; efficient and effective process; and the process is manageable.
- ▶ Iterative course development begins with an evaluation of what the course content should contain and how it will be effective. Priority and estimate of work time are posted on a central board for the team to see. This is much like user stories and estimations in Agile.
- ▶ Planning is next with determining what should be included in the final project, or what user stories to complete.
- ▶ Finally, sprints take place to complete the user stories/content and create the course. Sprints will more than likely take one to two weeks in course design.
- ▶ With ADDIE, this process would all be planned at the beginning with timeframes for each activity taken into the complete plan.



Benefits of Agile and Scrum

- ▶ Agile seeks alternatives to the traditional aspects of project management.
- ▶ Agile allows teams to respond to the unpredictability design can have through incremental, iterative work sequences and practical feedback.
- ▶ Courses can be developed quicker than using other traditional methods.
- ▶ There is less documentation with Agile, allowing for quicker, simpler reviews of the course components.
- ▶ Agile allows for change and flexibility. This helps to keep the content relevant and designers to adapt to the learners' needs more efficiently.
- ▶ Agile could allow for better innovation in a course design.
- ▶ Using iterative allows for course objectives and requirements to be defined over a period of time rather than all at once.



References



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