

Effectiveness of Agile Design in Wrap-Around Content Development

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Abstract

ODL is growing at The University of the West Indies and on the premise of increasing access, the demands on the curriculum development unit of the institution's fourth campus – The Open Campus, has increased by more than 300 percent. This paper addresses issues of effectiveness in an agile learning design process which relies on the wrap around content development method. The method assumes efficiencies in the production of a greater volume of course materials that utilize fewer resources. The paper discusses the practical implementation of the agile learning design in seven (7) undergraduate and four (4) graduate programmes over a twelve (12) month development cycle – February 2015 to January 2016, paying attention to the use of templates to focus the content development process; use of OER to reinvent the learner experiences with the course materials; redesigned orientation and training of course developers; and streamlining and standardization of policies, protocols and processes.

With the institutional commitment to increasing access and the high expectations placed on the curriculum development unit for accelerated course development, the paper discusses agile learning design and the successes and challenges experienced in using the wrap around method for achieving scale and sustainability in course design and development. In this setting how can the institution assure sustainability and effectiveness in the production of its online course materials? Does use of an agile learning design lead to development of course materials at the required quality standard? Are the processes sustainable? What are the efficiencies for the institution?

The paper also addresses the management of change, responsiveness to change in the agile learning design and will provide an indicative assessment of the effectiveness of the institutional processes. The outcomes are intended to be part of a continuing assessment over the life of a two (2) year course development project.

Introduction

In 2015, The University of the West Indies Open Campus (UWIOC), Academic Programming and Delivery Division (APAD) curriculum development teams transitioned from instructional design practices that guided contracted subject matter experts (SMEs) through development of self-instructional course materials for online delivery. The SMEs were contracted to produce these materials which were drawn from various sources including copyright protected and open source textbooks, journals and other sources. Mason (1998) referred to this as the **Content and Support Model**. This model produced what can be best described as comprehensive text books, first in print form and more recently in e-format. This was expensive, required a significant investment of time (an average of 1 year for development of a course) and the content could not be easily updated. The curriculum development team struggled to maintain relevance of content while keeping costs in check for payments to the SMEs. The production process for the textbook format was intensive and inflexible when quick changes were needed to materials, including updating of resources.

The transition to the **Wrap-around Model** in 2015 was occasioned by funding for development of a suite of seven (7) undergraduate and four (4) graduate programmes as part of an external partner institution region wide project for the strengthening of distance education in the Caribbean. The project's timeline for use of allocated funds required fast and flexible content design and development. The campus response to the need for development of seventy three (73) courses in the first year of the project – February 2015 to January 2016 - was a reduced timeline for course development (four months); increased emphasis on alignment of course objectives to learning activities; and the use of OER for “wrap-around” content. The emphasis would see less focus on content that would be nice for learners to know and more on what learners need to know and be able to do at the end of their courses. SMEs and the UWIOC curriculum development teams were therefore tasked to think about content development differently with more focus on building 21st century skills, and to complete course development in a shorter time frame using a variety of tools including templates and quality assurance checklists within a tighter team structure. To achieve this the team needed to be more nimble and flexible in their approach to course development. The need was to be more **agile**.

The critical questions for the campus to respond to, as part of an informed assessment of effectiveness include: Is the Wrap-around model and the process of agile learning design a sustainable and effective process for the production of online course materials? In the context of use of an agile learning design, what are the implications for quality assurance? Are there any lessons to be learned in the management of change and responsiveness to change?

Views From The Literature: Context For Agile Learning Design

The critical questions that are to be answered situate the literature review in two categories. First, the context of agile design and second the relationship between the problem to be resolved and the impact on learning for development in two areas: staff management and project management. Online course development at the campus utilizes a core instructional design model that facilitates a step by step approach to the design of online instruction that is grounded in theory and research. This is not to be confused with the models of online course development proposed by Mason (1998). Mason proposed the **Content and Support Model** which supports the use of relatively static content that forms the core of the course and is supplemented by tutorial support during online delivery. On the other hand in the **Wrap-around Model**, course materials are wrapped around existing content and there is greater focus on learning activities and learner engagement to facilitate teaching and learning. This is also referred to as a “50/50” model, as on-line interactions and activities take up approximately half of the learners’ time in the online environment (Mason, 1998).

Where does agile learning design fit? We can define agile learning design in the context of an iterative model of instructional design where the focus is on collaborative work, rapid prototyping and redesign as needed to facilitate expected outcomes. In online course development agile learning design can be conceptualized in a number of ways, however central to the design process is the staff involved (staff centric) and outcomes related to the project (project centric).

In a staff centric model of agile learning design, holistic design, modelling and execution of projects that support interaction and collaboration is needed to enable all stakeholders to meet objectives, share knowledge and transfer competencies (Lillehagen et al 2012). The authors note the potential of the agile approach to “enable model-based, architecture-driven solutions, and remove existing interoperability and collaboration barriers” (p. 1). They further note the potential and impact on the approaches, methodologies, and agile design solutions for the staff as the main stakeholders. However, while the speed of change has increased, many employees are not prepared for current or future challenges (Miles, 2013). To bridge the gap, Miles presented a case for use of learning strategies that could respond far more quickly to change. The key finding of the staff centric view presented by Miles is that employees see their colleagues as a valuable resource when they are to acquire new skills or knowledge. Owen and Dunhan (2015) propose an iterative project planning approach at each phase of the design process with each iteration moving through a process of design, development, testing and making changes in response to feedback, before rolling out the course materials to learners. This process is built into the ongoing design of programmes such that courses can remain organic and responsive to the needs of learners. The main advantage of agile course design and development in this model is the opportunity to embed the real, external world, thus helping learners to develop specific skills they will need within a subject domain (Bates, 2015).

In a project centric model, a recursive process, with input and output underlie most traditional organizational thinking in agile design (Browaeys & Fisser, 2012; Morin, 2005). Hall (2012) lists key practices drawn from the business environment to form agile learning design. These include: teamwork to determine goals and shared objectives; rational unified processes drawing on systems and software engineering using its iterative development methodology; focus on eliminating waste from processes; and frequent update meetings during product development. Hall proposed that these processes would enable the training design team to adapt to changing requirements, reduce the project risk, increase the visibility of team progress, involve stakeholders from the beginning of projects, and speed up the value that the team brings to the process. However, Yocum (2015) in applying the agile design principles, suggests that while some of the recommended practices of agile design may promote flexibility and creativity within instructional design projects, more research is needed to broaden the understanding of the use of agile in instructional design. How then is agile learning design applicable to the project at the University of the West Indies, Open Campus?

Applying Agile Learning Design – The Course Development Project

The essential features of the course development project that informed the agile learning design process are as follows:

- 1) Two (2) years for development of course materials for just over 200 online courses before project funding ends. Seventy three (73) of these courses were expected to be developed in the first year with more rapid development in Year 2.
- 2) Reducing the time to development of an online course to 4 months following 2 months of planning and recruitment of course developers; and cutting costs for payment of SMEs by 35 percent per undergraduate course and 40 percent per graduate course.
- 3) Accelerated course development requiring introduction of new quality assurance processes including standard templates for all course documents; revised quality assurance checklists; and mandatory use of an online space for development of the courses and for project management.
- 4) Increasing the size of the curriculum teams by 30 percent and introducing new staffing in critical areas such as instructional design including multimedia, and editing.
- 5) Development of new performance indicators for the curriculum development teams and the contracted course developers with expected outcomes and measures as follows:

Main Outcome: Accelerated course development and strengthened capacity to develop online courses that cater to the needs of a more demanding student base and facilitates the expectations for delivery of the courses upon completion of content development.

Main Measures: Departmental QA audits using QA checklists; Analysis of time on task data; results of internal QA review system (departmental)

Elements of the Agile Learning Design Adopted by the Campus

Agile learning design was used in the context of enhancement of existing ID models and did not seek to replace any particular model or course development process. The focus of the learning design was on adaptation, evolving development, and rapid feedback. Bates (2015) notes that there is no single approach to agile design. In keeping with this view the five main elements of the agile learning design focused on adaptability to the circumstances in which the department operated. This included:

- 1) **High levels of collaboration:** All team members were involved in the process from the beginning – design of templates, recruitment and orientation of course developers. In the initial stages of course development the department head and supervisory staff were involved with reviewing drafts of course design documents – course outlines and course plans, and review of the early drafts of course materials as part of an internal quality assurance process

- 2) **Iterative:** Course materials were reviewed by the curriculum development specialist/instructional designer assigned and through a process of peer to peer review, by team members; revisions to course documents and further review and revisions before finalizing of course design documents and content. All team members were involved in the peer to peer reviews.
- 3) **More interaction between instructional design and multimedia:** The intention was to allow for less focus on narratives and adaptation of OER using templates to inform rapid content development and design of engaging learning activities
- 4) **More opportunities for early interventions:** The internal quality assurance process – peer to peer reviews and management review; the use of checklists and templates for internal consistency provided the opportunity to timely interventions to arrest any design or time based inconsistencies and risks to the project. Regular meetings (weekly as needed) were key to the early interventions as reporting on progress and risks took place at the meetings and solutions proffered to address the risks – ensuring that all stakeholders were operating within the same parameters of the approved processes
- 5) **Improved use of human resources:** The opportunity for up skilling and multi skilling among production staff and curriculum development teams to fill gaps where needed to support course developers, in response to the nimble and flexible approach of agile learning design.
- 6) **Redesign of Course Materials to meet learner needs:** For the wrap-around, focus on use of specific chapters from a published textbook or e-books; use of links to web based resources prepared by diverse authors to introduce a variety of perspectives and experiences; greater concentration on learning activities that engage students and provide a real world, authentic context (work or life experiences), for their interpretation of the course; facilitating an approach to learning that placed greater responsibility on the learners to choose from among a variety of resources including multimedia, that are suited to their learning styles

These six elements were premised on a team approach to course design and development and emphasized regular examination of performance to standardize best practices and revise those practices that were inefficient and ineffective. This enabled the team members to learn from each other and use their experience for continuous improvement. To achieve this in the interim, regular meetings were held with team members to discuss the processes, reflect on the risks and arrive at solutions to address issues identified. The instructional design staff members were also tasked to develop templates that would ensure emphasis on the needs of the learner throughout the design and development of course materials and ultimately the internal reviews. Checklists and tracking files became a critical part of the dialogue and the continuing discussions in the area of accountability and effective use. The expected outcome was a quick response to the risks in the course development environment, using the various documentation, which the process demanded and revisions of the processes and the documentation as needed.

The Strategy – Why?

How important were the strategies employed and why did the campus consider them important and critical to the response for rapid content development? The reliance on existing OER sources such as *OpenStax*, *Saylor*, *Boundless*, *the OER Commons*, and *MERLOT* meant that the SMEs were **not re-inventing content**. Instead they were refocusing and **re-inventing the learner experience with the content**. This left more of the limited course development timeline for focus on creating authentic learning activities that drew more closely from the SMEs real-life experience and practice in the field. The curriculum development teams were therefore able to work closely with them to establish authentic examples and non-examples and the use of templates served to further focus the content development process. The templates contain a pre-determined set of prompts concerning baseline content, that is, what the learner **MUST** know or be able to do in a particular aspect of a course topic. This presented an opportunity for more members of the team to develop a working framework for the course thus facilitating feedback and faster development. Additional information not absolutely necessary for the learner’s knowledge, application and evaluation of key concepts and ideas would be reduced as SMEs could focus on creating engaging learning activities and less on re-producing content.

The strategy to “wrap-around” OER content also meant that there were increased opportunities to transition the learner in and out of content and learning activities could be used more effectively to situate the external content sources and provide the learner with a foundation for assessment of learning and assessment for learning and reflection on the process and the actual learning and application to experience.

.The Strategy – How?

Careful planning for implementation informed the strategy. How? Curriculum development teams worked collaboratively to develop templates, guidelines and protocols for all of the major elements of course development. We carefully interrogated and reengineered our processes, determined project risks and identified our contingencies. Our main objective was focused on how to achieve speed, flexibility and ensure a collaborative and iterative content development process with the ‘Wrap-Around’ content development model. The transition proved to be challenging and time consuming, and required frequent meetings and debriefing at the end of each stage of content development. During the process we learned key lessons which allowed for us to continually review, revise and refine our processes during implementation. We also captured data to inform further refinements post project implementation.

Discussion

Were the objectives for the Wrap-around and agile learning met? Did we achieve sustainability - that is, meeting our current needs and laying a foundation for continued growth? Did we design an effective process for the production of online course materials? Were the quality assurance practices used and their goals achieved? Are there any lessons to be learned in the management of change and responsiveness to change?

The campus was able to achieve completion of development of sixty nine percent (69%) of the courses over the year under review with the remaining 31% of courses at varying stages near completion of development. Of the twelve (12) months allocated for development of the courses, four months were spent in planning for the new model of development including recruitment of SMEs and orientation, building of online course spaces to host the development of content – the latter allowing for sharing and ease of collaboration in a real time environment for review and revision of courses as they were being developed. While the careful planning before project implementation and documentation of all processes helped with the iterative process employed for review of course materials, some of the key take away lessons from our first experience of using the model were instructive and facilitated an indicative assessment of our effectiveness. They spoke both to our processes and to our leadership and facilitation of the processes. We learned that:

- Our orientation and training strategy tended to be too prescriptive and focused too heavily on the instructional design elements and less on how the model would be actioned in practice.
- The orientation and training strategy was accompanied by a heavily streamlined workflow process which we later learned led to key stakeholders withholding information based on their limited understanding of the model and their inability to implement the model as intended.

However, the iterative process of review of processes and the content of courses was instrumental in helping to identify the areas that needed attention during course development. The use of quality assurance checklists further assisted in minimizing risks and creating the environment for a quicker and more informed response to inconsistencies in the output.

The peer to peer review process has provided an excellent platform on which to grow and develop our processes. Curriculum development team members were supportive of the interventions and saw added value in the opportunity to revise their output in a nonthreatening environment with their colleagues. This had a positive effect on the change management process as it provided for a non prescriptive mode of engagement while at the same time removing the individualist mode of the content and support model in which a lead curriculum team member would have full responsibility for all aspects of the course development process. This left little or no opportunity for engagement with peers and benefit from the peer to peer process of review.

While there were successes that require robust measures to assess the degree of those successes, the project encountered issues related to accountability and requires more emphasis on redefinition of roles and responsibilities within a collaborative space. This solidified the view of the disruptive nature of change. The outcomes indicated a need to resolve the relationship between Curriculum Development Specialists and Multimedia Specialists so that they could both support each other. Multimedia requests in part continued to be out of alignment with course objectives and focused more on “nice to have”, rather than serving a specific purpose to facilitate learning in the courses. The use of templates and checklists worked to counter any negative fallout and substantive risks in the early

phases of course development, however team collaboration is still a work in progress and this is one area in which much work is needed for cohesion, collaborative team work and development of effective techniques and processes.

Conclusion

Agile learning design holds promise for course development teams, especially if applied in a structured way to resolve a problem of practice. The method worked for the course development process at the campus when integrated with the “Wrap-around” model of content development. Although we fell short of the targeted number of courses fully developed within successive four month periods in the first year, we were able to develop processes that have been reviewed and redefined over time to meet existing and emerging needs. We were able to identify risks in real time through frequent meetings and dialogue and used the experiences as learning points to improve the subsequent iterations of the processes and the courses in the development cycle. The project will no doubt benefit from the qualitative lessons learned in the first year as year 2 progresses.

There is merit to the view that more research is needed to broaden the understanding of the use of agile in instructional design (Yocum, 2015). While the results are indicative of some measure of success, there is need for further research over the time period of the project and linkage to more specific performance indicators of the respective curriculum development teams to assess effectiveness.

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