



THE EFFECTIVE MANAGEMENT OF REMOTE HIGHER EDUCATION CURRICULUM DESIGN TEAMS USING SCRUM

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ABSTRACT

Objective: This paper reports on the value of using Scrum as agile project management framework to support curriculum design practitioners in leading remote academics through times of change.

Theoretical Framework: Among the many agile project management approaches, Scrum was selected as project management framework given its emphasis on transparency, inspection and adaptation.

Method: An exploratory case study design was used to conduct this research. One project manager, three curriculum design practitioners and seven academics participated in the study. Qualitative data gathering techniques included, a contemporary reflexive journal, reflective email interviews, small group interviews and individual interviews.

Results and Discussion: The findings suggest that Scrum guides managers to partner with stakeholders to establish project processes and priorities, encouraging consultative management. In addition, the participating curriculum design practitioners, reported (1) more frequent and goal-directed communication, (2) structured and transparent coordination and (3) enriching collaboration practices that lead to individual empowerment, despite teams being geographically distributed.

Research Implications: The study provides practical guidelines for implementing Scrum as an educational management framework for remote curriculum design teams.

Originality/Value: This study contributes to the limited literature available on the management of higher education support services teams by revealing the lived experiences of various role players and the positive impact of implementing Scrum. Detailed methodological strategies are explained which could assist other higher education institutions with implementation and further research on agile project management strategies to lead their teams.

Keywords: Curriculum Design, Agile Leadership, Scrum Framework, Higher Education Management, Remote Work.

O GERENCIAMENTO EFICAZ DE EQUIPES REMOTAS DE PROJETO DE CURRÍCULO DE EDUCAÇÃO SUPERIOR USANDO SCRUM

RESUMO

Objetivo: Este artigo relata o valor de usar Scrum como estrutura de gerenciamento de projeto ágil para apoiar os profissionais de design de currículo em acadêmicos remotos líderes através de tempos de mudança.

Estrutura Teórica: Entre as muitas abordagens ágeis de gestão de projetos, Scrum foi selecionado como estrutura de gestão de projetos, dada a sua ênfase na transparência, inspeção e adaptação.

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Método: Um projeto de estudo de caso exploratório foi usado para conduzir esta pesquisa. Um gerente de projeto, três profissionais de design curricular e sete acadêmicos participaram do estudo. Técnicas qualitativas de coleta de dados incluem, uma revista reflexiva contemporânea, entrevistas por e-mail reflexivas, entrevistas de pequenos grupos e entrevistas individuais.

Resultados e Discussão: As descobertas sugerem que a Scrum orienta os gerentes a fazer parcerias com as partes interessadas para estabelecer processos e prioridades de projetos, incentivando a gestão consultiva. Além disso, os praticantes de design de currículo participantes, relataram (1) comunicação mais frequente e direcionada a objetivos, (2) coordenação estruturada e transparente e (3) práticas de colaboração enriquecedoras que levam ao empoderamento individual, apesar das equipes estarem geograficamente distribuídas.

Implicações da pesquisa: O estudo fornece diretrizes práticas para a implementação do Scrum como uma estrutura de gerenciamento educacional para equipes de design de currículo remoto.

Originalidade/valor: Este estudo contribui para a literatura limitada disponível sobre a gestão de equipes de serviços de apoio ao ensino superior, revelando as experiências vividas de vários atores e o impacto positivo da implementação do Scrum. São explicadas estratégias metodológicas detalhadas que poderiam auxiliar outras instituições de ensino superior na implementação e pesquisa adicional de estratégias de gerenciamento de projetos ágeis para liderar suas equipes.

Keywords: Design Curricular, Liderança Ágil, Estrutura Scrum, Gestão do Ensino Superior, Trabalho Remoto.

LA GESTIÓN EFICAZ DE LOS EQUIPOS DE DISEÑO DE PLANES DE ESTUDIOS DE EDUCACIÓN SUPERIOR A DISTANCIA UTILIZANDO SCRUM

RESUMEN

Objetivo: Este artículo informa sobre el valor de utilizar Scrum como un marco de gestión de proyectos ágil para apoyar a los profesionales del diseño curricular en la conducción de académicos remotos a través de tiempos de cambio.

Marco teórico: Entre los muchos enfoques ágiles de gestión de proyectos, Scrum fue seleccionado como marco de gestión de proyectos dado su énfasis en la transparencia, la inspección y la adaptación.

Método: Se utilizó un diseño de estudio de caso exploratorio para llevar a cabo esta investigación. Un gerente de proyecto, tres profesionales del diseño curricular y siete académicos participaron en el estudio. Las técnicas de recolección de datos cualitativos incluyeron, una revista reflexiva contemporánea, entrevistas reflexivas por correo electrónico, entrevistas en grupos pequeños y entrevistas individuales.

Resultados y discusión: Los hallazgos sugieren que Scrum guía a los gerentes a asociarse con las partes interesadas para establecer los procesos y prioridades del proyecto, alentando la gestión consultiva. Además, los profesionales participantes en el diseño del plan de estudios informaron: 1) una comunicación más frecuente y dirigida a objetivos, 2) una coordinación estructurada y transparente y 3) prácticas de colaboración enriquecedoras que conducen al empoderamiento individual, a pesar de que los equipos están distribuidos geográficamente.

Implicaciones de la investigación: El estudio proporciona pautas prácticas para implementar Scrum como un marco de gestión educativa para equipos de diseño de currículos remotos.

Originalidad/Valor: Este estudio contribuye a la limitada literatura disponible sobre la gestión de los equipos de servicios de apoyo a la educación superior al revelar las experiencias vividas de varios jugadores de rol y el impacto positivo de la implementación de Scrum. Se explican estrategias metodológicas detalladas que podrían ayudar a otras instituciones de educación superior con la implementación y la investigación adicional sobre estrategias ágiles de gestión de proyectos para dirigir sus equipos.

Palabras clave: Diseño Curricular, Liderazgo Ágil, Marco Scrum, Gestión de Educación Superior, Trabajo Remoto.



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1 INTRODUCTION

When COVID-19 became a global pandemic in 2020, it took but a few months, for the higher education field to see its most rapid reformation yet, on a worldwide scale (Romero-Ivanova et al, 2020). Both public and private contact universities were forced to convert their curricula to fully online, distance mode in record time (Dennis, 2021). However, years after the pandemic, designing and developing online learning curricula remains challenging. This is due to a lack of guidance provided to online learning teams, as well as academics' limited experience in the field (Pandya, Patterson and Cho, 2022). Working fully remotely further exasperates the matter of managing learning design staff who support academics (Kativhu, 2021).

While the number of online learning programs offered by higher education institutions continues to grow, studies on the management of curriculum and instructional design teams creating fully online programs remains limited (Fito-Bertran and Martinez-Arguelles, 2019). Particularly, the role of project managers in agile teams remains a poorly researched field. Gandomani et al., (2020) maintain that agile frameworks often create the impression that the responsibilities of a project manager are absorbed by self-organising teams, however in reality, most environments continue to require such an independent role.

During the pandemic project managers of curriculum design teams, were tasked to transition to remote management strategies, while the curriculum design practitioners in turn had to provide extensive support to off-site academics (Khamis et al., 2021). Managers now actively use information and communication technologies to maintain communication with teams. Virtual conferencing meetings and the use of traditionally social communication tools such as WhatsApp, has become commonplace for work-related interactions (Singh-Pillay and Naidoo, 2020). Remote work however requires adjustments to personal and professional life, leaving many university staff feeling overwhelmed and fatigued (Bruggeman et al., 2022).

What many managers and curriculum design practitioners find most challenging, is maintaining motivation and commitment among the academic staff, who experience techno-overload and emotional dissonance (Dahabiyeh, Najjar and Wang, 2022). Traditional waterfall approaches where management is hierarchical, and project planning is finalised early in the



curriculum design lifecycle, without room for iteration and changes in every phase, is no longer feasible (Muhammad et al, 2021). Managers across the globe must adopt leadership strategies that strengthen interpersonal relationships and demonstrate sufficient care to build team trust (Malik, Sinha and Goel, 2020). Accordingly agile project management methodologies were investigated, to establish whether curriculum design team engagement could be enhanced.

Peeters et al. (2022), reported agile project management as contributing to greater team trust due to the open communication and shared ownership it promotes. Similarly, Holtzhausen and de Klerk (2018) found Scrum, an agile project management framework, to be particularly useful in encouraging servant-leadership and prioritising the psychological safety of teams. This study therefore aimed to investigate how the Scrum project management framework could be adapted for the leadership and management of remote curriculum design teams.

2 METHODOLOGY

In this qualitative study, the researchers held an interpretivist world-view, viewing reality as socially constructed, through shared meaning, and language (Thanh, Thi and Thanh, 2015). Taking an interpretivist perspective allowed the researchers to hone in on the participants' subjective experiences and interactions with each other (Ryan, 2018).

An exploratory case study, using email, group and individual interviews, as well as surveys, was conducted to focus on multiple angles of data to obtain a holistic view of the project management experiences (Patrucco, Canterino and Minelgaite, 2022). Accordingly, the voices of individual participants were valued greatly. As interpretivists view knowledge as both context-dependent and time-bound, the researchers sought to include the views of diverse participants who participated in online learning projects over a minimum period of six months, up to three years (Hudson & Ozanne, 1988).

2.1 PARTICIPANTS

Purposive sampling was used to establish identification and selection criteria for participants with rich information and relevant experiences (Patton, 2015). The study included seven academics, three curriculum design practitioners and one head of the curriculum design team, a role which one of the researchers portrayed. Six curriculum design teams were represented, from fields of health sciences, education, law, economic and management sciences and theology, respectively.



In the context of this study the project manager, a 34-year-old female, was responsible for researching a potentially workable project management framework to implement during remote team management. The project manager took on many of the roles and responsibilities including defining the project vision, anticipating stakeholder needs, prioritising tasks on the product backlog and keeping communication open between the development teams and stakeholders (Gandomani et al, 2020).

The curriculum design practitioners whom were all female, held PhD degrees and ranged from ages 35 to 60, had roles including; leading development teams through the processes of curriculum conceptualisation, storyboard design, and learning material development. In addition, they conducted course evaluations, and provided professional development training. Their roles and responsibilities as Scrum masters included being a servant-leader who facilitates, adapts and coordinates Scrum events, removes impediments and protects the interests of team members (Shastri, Rashina and Amor, 2021).

Finally, the academic staff, five of whom were males and two females, aged between 30 and 60 years, with five individuals holding Masters' degrees and two Doctorates, provided subject matter expertise. The academic staff fulfilled the roles and responsibilities of development team members (Spiegler, Heinecke and Wagner, 2021). This meant that the academics provided subject matter expertise to create a fully online learning programme consisting of multiple courses. They wrote course narratives, designed learning and teaching activities, and created authentic assessment tasks.

2.2 PROCEDURE

Once a thorough understanding was obtained of the principles, values, role players, processes and artefacts of Scrum, the project manager and curriculum design team proceeded to determine the activities required to design a fully online program. It took several months to consult with numerous university directorates and document the phases, tasks and minimum standards required. A product backlog was created, including descriptions of tasks, their ideal order, time estimates, priority and definitions of done (Schwaber and Sutherland, 2017). An online project management software site called ClickUP was used, to collaboratively track, adapt and share the progress of multiple projects. Morin (2020) recommends the use of such technologies when implementing Scrum as a means to facilitate collaboration.

Next, introductory materials such as PowerPoints and videos on Scrum were created, to explain to role players why the framework was being used and how it would guide the process.



Emphasis was placed on the managerial support functions offered, including role-player empowerment, improved communication, transparency, reflection, and regular feedback opportunities (Papke and Wagner, 2017). Responsibilities of the Scrum team members were discussed, as well as values of commitment, focus, courage, respect and openness (Maulana and Raharjo, 2021).

The process of curriculum design was guided by a sprint backlog (a list of manageable tasks selected from the product backlog, to be completed during a sprint), ensuring that all project related activities were prioritised based on value and time-boxed into manageable 1 to 4 week-long sprints. For many teams, weekly stand-up sessions were held to report on what was done, needed to be done and impediments experienced. In adherence to the principle of iterative development, curriculum design practitioners conducted reviews of work submitted, on a weekly basis to ensure constructive alignment.

Given that the teams worked fully remotely, Google Suite was used for all project engagements. Each programme team had their own Google Drive folder, with all the necessary resources and templates included. Teams met using Google Meet and worked collaboratively on Google Docs and Google Sheets to populate program and course information. Feedback was provided using the suggestions and comments tool.

2.3 DATA GATHERING AND ANALYSIS

The first data-gathering technique entailed researcher observation and note taking in a contemporary reflexive journal over the three years of the study. The journal comprised WhatsApp voice notes, OneNote reflective essays, hand drawn mind maps and more, detailing decisions taken, potential biases, and behaviours observed. The second form of data collection entailed email interviewing with the curriculum design practitioners to gather data on their opinions of the training interventions completed over 15 months. Email interviews are an asynchronous form of interviewing that allows participants to reflect autonomously on their responses to questions (Topping et al., 2021).

Third, online group interviews were conducted with the curriculum design practitioners using videoconferencing software. A series of four online group interviews ranging from 45 minutes to just over an hour, took place during the concluding six months of the study. A semi-structured interview protocol with guiding open-ended questions was used (Mcgrath, Palmgren and Liljedahl, 2018). Topics for discussion included the roles of Scrum members, terminology use, guiding principles, and the importance of shared values.



An online survey via Qualtrics was used as the fourth data-gathering technique. Questions relating to e-learning project management experience and, communication, coordination, and collaboration practices experienced while being a development team member in the study were included. Mainly Likert scale and rank order question types were used.

Finally, individual online semi-structured interviews were conducted with the seven academics. The semi-structured protocol consisted of 31 guiding open-ended questions, with interviews ranging between 33-53 minutes. Questions related to the participants' experiences of communication, coordination, and collaboration while using Scrum as a project management framework.

Throughout the data gathering cycle, inductive and deductive analysis took place to ensure that informant-centric themes arranged within researcher-centric themes could emerge (Azungah, 2018). Content analysis of the reflective emails, group interview transcripts, individual interview transcripts and open-ended questions of the questionnaire was conducted using ATLAS.ti (version 9).

Although the process described may seem rapid, the researchers experienced it as messy and strenuous when immersing themselves in the data for several months, going through cycles of reading and re-reading, coding and re-coding, and categorising and re-categorising before themes emerged (Stewart, Gapp and Harwood, 2017).

3 RESULTS

In many institutions, curriculum design is the responsibility of academic departments with very little experience in conceptualising a programme in its entirety, and whom lack knowledge of curriculum theory, legislation and policy (Maphosa, Mudzielwana and Netshifhefhe, 2014). It is often only at the final stages of conceptualisation that the end product is quality assured by a curriculum specialist, and stakeholders are consulted for feedback on industry and employer interests (Dowelani and Dowelani, 2020). In such instances, waterfall management does not call curriculum design practitioners to embrace the curriculum project as an empowerment opportunity for all members involved, but rather emphasises linear, sequential processes and meeting of project deadlines.

Scrum, as agile project management framework, was found to greatly encourage using the project as an empowerment process for all involved. The findings suggest that implementing Scrum, inspired curriculum design practitioners to promote a shared vision of the curriculum as end product, while encouraging greater transparency of processes and providing



strategies for frequent and open communication. Participants responded positively to this, as can be seen in the words of Bongani, an academic who fulfilled the role of development team member.

We were given an opportunity as a team, as individuals, to have an input and, I think to me, that's really, very important. You know, when you feel you're, sort of included, and your view matters, your opinion matters. And so, I think, for the fact that it was more to do with a shared vision, just for the fact that all of us felt that we are contributing to the whole process. (Bongani, academic)

The project manager in particular found Scrum to be very useful in guiding the inclusion of various higher education role players and empowering academics to share ownership of the curriculum project.

Determining the product backlog items and criteria required consultation and critical engagement to determine what was considered good standards, best practice and minimum requirements. Also, meetings with academic teams to discuss how everyone could work collaboratively towards a shared goal proved valuable. (Lisa, project manager)

One of the curriculum design practitioners explained how the process of implementing Scrum, aided her in better managing her projects. Amelia clarified that Scrum supported her in structuring the curriculum design and development process in such a manner that the academics were able to clearly understand how the project would unfold and whether the team was on track.

This approach helped a lot in structuring the process that we have to go through. But it's also very valuable for transparency because everyone knows exactly what is expected, and when it is expected. And then also, it's very easy to keep track of your progress and it's very visible, it's transparent so we can see we are on track or we are behind. So I think that this process actually bettered my abilities to manage projects. (Amelia, curriculum design practitioners)

Similarly, Olive, reported that Scrum assisted her in focussing on the finer details of team management in the higher education setting. She explained that the framework forced her to be more meticulous when thinking about curriculum as process and product, which was something she usually had the tendency to overlook.



I like the idea that the principles are generic and can be applied to different environments. I personally like to rather work with the bigger, less detailed picture, but in our environment, I have to zoom in and out the whole time and that I struggled with. I am not good with details, so where I am the person taking the lead, I tend to overlook a lot of detail. (Olive, curriculum design practitioners)

Working in a time-box and prioritising tasks according to value, greatly helped the curriculum design practitioners to keep their development team members motivated.

It really helped us move along because we had clear goals for every week. I like the Scrum process in that you can chunk the work. So, we say, okay, for the next meeting, we want to be here. It helps you also to better manage the workload and everything that needs to be done. (Amelia, curriculum design practitioners)

While Scrum recommends daily stand-ups, the academic teams working with Amelia met only twice a week due to workload constraints. The first session was used as a workshop to explain and discuss curriculum components to be worked on during the sprint, and then towards the end of the week the Scrum session was used to discuss progress and barriers. Amelia, explained that weekly Scrum sessions worked well in this environment because it allowed her to ask critical questions on progress that might otherwise be challenging, working with academics who hold positions senior to hers. Further, stand-ups ensure that impediments are dealt with in a timely manner.

To elaborate on the matter of academic workload, managers had to be cognisant that unlike other environments where Scrum is often used by teams working on one project, in higher education academics have multiple roles to fulfil. Part-time staff often run private companies and have little spare time to prepare for lectures, teach, grade and consult with students, as Laurene and Alanzo explained. Full-time staff share much of these responsibilities along with furthering their studies, supervision and being required to do community engagement according to Lathabo.

Despite the drawback of a strenuous workload that academics and curriculum design practitioners were experiencing, the findings revealed that the value of personal empowerment was a significant reward.

It's a tough process. There is no two ways about it. But it adds so much knowledge for use in everyday work regarding teaching and learning, structuring a curriculum, presenting lectures, because everything has to do with the curriculum design. Eventually, the way in which you present the material, the tools that you use, all of these are part of the design process. (Noah, P4: DTM)



An aspect of Scrum which is intertwined into the principles of all practice is collaboration. All the participants were of the opinion that the end product, a fully online curriculum, was of much higher standard because of their collaborative efforts. Bongani, an academic and development team member, found that working collaboratively aided the group with problem solving through critical discussions.

It's also then much more helpful to get a better-quality product out there, I think because everybody's got a different input into this and I think the more the input, I mean, it is scrambled in the beginning, but I think the better the project that we can deliver. (Laurene, P1: DTM)

'We will engage with issues, for example, related to how our module outcomes are linked to the program purpose statement. And so, we kept on having those conversations. And we kept on wrestling with the ideas throughout the process' (Bongani, P1: DTM).

The Scrum values were not new to the curriculum design practitioners, yet still essential to discuss with the teams. All three curriculum design practitioners explained that they already adhered to values of courage, focus, openness, respect and commitment before having started to implement Scrum. The need to discuss the values with teams did however aid the curriculum design practitioners in better fulfilling the role of servant-leader, as everyone was now accountable for working in a self-directed manner towards the team goal.

I think it is quite obvious that if you don't have the values, it is a slave – boss relationship. I feel that for the principles to even count, if the values are not there, then it is a futile exercise, moving back to one person that is keeping track of progress and taking out the stick. (Olive: curriculum design practitioners)

The further the various programme teams progressed, the more evident it became that a number of adaptations to the Scrum framework would be necessary. The first adaptation was a reduction of daily stand-ups to weekly stand-up sessions. Secondly, the inclusion of an orientation sprint was later incorporated, as participants who only had a few orientation meetings, found the initial sprints overwhelming. Noah, an academic, explained that he experienced the curriculum design process as very complex initially and would have appreciated a week or so for orientation.

It started out as difficult in the sense, what is expected? How to do it? That was a bit difficult for me since I'm not doing it every day. It is a very complex process and so I had to make adjustments and read up a lot at the beginning of the process, just to familiarise myself with what is expected, what is the outcome? So, if I can make the



recommendation, perhaps start a week earlier, or just give some period for orientation. (Noah, academic).

After including a proper orientation sprint, with several meetings, work sessions and information resources, Bongani who was in a different programme development team, experienced a sense of calm and understanding about the project scope, timelines and approach.

I think that the orientation was detailed and informative. And it was not rushed it was done, not in only one meeting, but there were several meetings that were scheduled, just to take us through the processes. Everyone who was involved, were engaged, and for me, I felt that I knew what was required of me. I knew the scope of this project, the timelines as well as how it was going to be approached. (Bongani, academic)

Finally, to assist academics in finding dedicated time to focus on their courses, the inclusion of catch-up sprints was deemed necessary. As project manager, it was important to anticipate that teams in the higher education environment would not always be able to maintain the pace one could expect from individuals who had only one project to focus on.

It did get a bit overwhelming to do the meetings each week and have the work that needed to be done, done each week. ...Uhm, so then those catch-up weeks we had really helped. So, instead of doing the meetings on Thursdays, just putting aside that time to really focus and catch-up on the work that we just didn't have time to do. (Quintin, academic)

Although Scrum is traditionally recommended for teams who can meet together physically, the participants in this study found that engaging virtually, using the framework as guide, worked very well.

I'm only now familiar with the digital communication, and I'm not sure how you did it prior to COVID, whether you then had face-to-face meetings? But I can attest to the value of digital communication. I cannot imagine there's a better way of doing it than online. (Noah, academic)

The majority of academics found that virtual interactions saved costs on driving to in person meetings, was more convenient and most importantly, helped them maintain focus on the work at hand. Laurene, summarised well how online interactions felt more focussed and aided in saving time.



I also find that once we communicate on a platform like this, we communicate and it's over and done with. Where if we sit in meetings, usually, it takes much longer than projected, because there's a lot of other things going on. Where it is quite focused if we communicate on an online platform. (Laurene, academic)

With the Scrum pillar of transparency guiding the team manager, the use of online collaboration tools and templates was encouraged, to enhance open communication. These tools allowed curriculum design practitioners and development team members to monitor progress. This practice was well received among everyone in the Scrum team, as Quintin revealed.

We all had access to the Google drive and sheets, and all of that, that was used in the development. So, I mean, I could even see what was happening on aspects and fields that I was not involved in. Like the bigger processes of getting the documents ready for whichever approval it needed. I did not feel like I was left out on anything. (Quintin, academic)

It is important, to mention that while most curriculum design practitioners found Scrum valuable as a project management framework, not everyone bought into the implementation thereof. Despite Misha receiving the same training interventions, shadowing and implementation opportunities, she did not attempt to fully implement all the aspects of Scrum. The pillars, principles and values appealed to her, however the events and artefacts were deemed burdensome.

Look, I think, from the three of us, I'm the one that's, well, I'm following my own framework at the moment. I can't say that I have tried it [Scrum], you know the way I should have tried it and done everything (Misha, curriculum design practitioners). But I also wouldn't go into a lot of formal things and say, oh, don't forget the Scrum meeting and don't forget the sprint log, and you know, we're going to have a whatever Scrum this day or whatever. For me, I think it takes away from the academic nature (Misha, curriculum design practitioners).

Although Misha was working with three programme development teams throughout the process of this study, none of her academic team members were willing to be participants. Therefore, the researchers were not able to draw comparisons between Misha's teams' experiences and those of Amelia and Olive.

Overall, the curriculum design team also shared mixed emotions about the Scrum terminology. They explained that higher education already has a number of fixed terms such as learning designer, project coordinator and subject matter expert. There was a general concern



that the addition of terms for well-established roles, might be cumbersome to academics who already find curriculum jargon challenging.

These findings proved significant to curriculum design teams that do not have well established project management practices in place, and who require not only structure and clear guidelines, but more importantly strategies that contribute to motivation and team commitment. Scrum principles and values were found to strengthen interpersonal relationships among development teams and assisted with the inclusion of stakeholder voices. While academic workload remained a challenge to development teams, even when implementing Scrum, slight adaptations such as catch-up sprints and a reduction in stand-up meetings assisted in alleviating the pressure academics experienced.

4 DISCUSSIONS

Literature searches on the management of curriculum-, learning- or instructional design teams in higher education, deliver little results, despite many institutions having such centres. Curriculum-related studies often address philosophical aspects such as the importance of student voice inclusion (St. John-Matthews *et al.*, 2020), curriculum transformation (Mawere, Lee and Tshamano, 2022), and interdisciplinary learning (Chang *et al.*, 2022) with little practical guidance regarding how academics can work with curriculum practitioners to conceptualise, design, develop and deliver new qualifications.

In other areas of study, such as the management of pharmaceutical companies (Azanha *et al.*, 2017), software engineering teams (Bhavsar, Shah and Gopalan, 2020) or even a team of researchers (Hidalgo, 2019), Scrum implementation has been found to impact positively on participant experience and project outcomes. Azanha *et al.* (2017) have found that Scrum contributes to increased motivation amongst project teams and greater staff satisfaction with the managerial support provided. The current study revealed similar findings, confirming that Scrum enhances managers' ability to effectively communicate, coordinate and initiate collaboration efforts among remote project teams. The framework aided program design teams in having regular and goal-directed social interactions, and the participants reported that they would not have been able to design fully online programmes without the support and leadership of the respective curriculum design practitioners. The curriculum design practitioners in turn, reported that implementing Scrum, made them better project managers who were now able to focus on the finer details of curriculum design as well as the social interactions of the stakeholders involved.



Magana et al. (2018) reported more open communication among students immersed in online group learning, when following Scrum. Similarly Avila et al., (2022) found that students in a software engineering course built stronger relationships due to the implementation of Scrum as project management framework. Correspondingly in the current study, the findings revealed that virtual social interactions were enhanced between project managers, team leaders and individual members following Scrum. In particular the agile pillar of transparency, coupled with the Scrum principle of self-organisation, and Scrum values of openness and courage, empowered participants to share opinions, make recommendations and take ownership of their respective roles.

Bellis et al., (2022) recently reported that leaders who participated in their study, found Scrum valuable in promoting inclusivity. This was an important discovery of the current study as well, with development team members appreciating how Scrum encouraged collaboration and the development of shared programme goals. This was a particularly valuable discovery in curriculum design, as learning programmes consist of multiple courses that should constructively contribute towards the achievement of programme exit level outcomes and the development of graduate attributes across the curriculum. Including academics and stakeholders in all decision making interactions, resulted in courses contributing collectively to achieve the programme purpose, eliminating unnecessary content repetition or accidental exclusion of learning experiences.

The use of Scrum artefacts such as the product backlog which prioritised tasks based on value, together with clear guidelines for participation in Scrum events such as Stand-ups, and the frequency of engagements, made it possible for teams to work efficiently and collaboratively despite being remote. The findings indicate that communication and collaboration technologies, in particular Google Suite, contributed to participants' positive experiences, to a large extent. Google Docs, -Sheets, and -Meet allowed teams to constantly share insights, provide feedback, review work and remain up to date on individual and project progress.

To better prepare academics for Scrum implementation, the inclusion of an orientation sprint is recommended. Although Scrum does not prescribe a project initiation phase (Flewelling, 2018), the findings revealed that curriculum design and development is often times such a misunderstood field in academia, that sufficient time is required to discuss models, approaches, policy, and practice. While academics grapple with the realisation of programme level alignment, authentic assessments and more, they too must master the Scrum framework jargon, events, and such.



One of the greatest challenges facing the participants was their diverse and extensive workloads. In a study conducted by Smith et al., (2020) it revealed how many academics battle to manage their workload, given that their day-job hours are already full, with research and other responsibilities flowing into evenings and weekends. In an ideal world, Scrum teams should be allowed to focus on one project at a time, without the constant interruption of other meetings, deadlines and commitments (Clark and Koppay, 2020). This is rarely a possibility in academia, however it is recommended that workload relief be provided for academics involved in curriculum design and development projects.

In closing, it must be noted that not all curriculum design practitioners will be willing to adopt Scrum. Reasons for this may include the requirement for frequent meetings, meticulous documentation of progress made, and the unique terminology used. In such cases, strategies such as shadowing fellow Scrum masters and having cycles of incremental implementation is recommended.

5 CONCLUSION

With many institutions embarking on the journey of designing fully online programs, this study comes at a time when literature on the management of higher education program development teams is in demand. Academics should not be expected to conceptualise and design curricula on their own but need to be supported by curriculum design practitioners. Whether the curriculum design practitioners work with one academic or a whole department to develop a cohesive and meaningful program, project management is required. For teams who often work remotely, Scrum provides a framework that promotes much-needed agile principles with sufficiently structured processes to allow teams to function optimally while being supported effectively. This study in particular, provides practical guidance on the procedures undertaken to implement Scrum at a university where previous project management strategies to guide curriculum design teams did not exist.

Implementing Scrum through online tools, works particularly well, as it suits the busy schedules of higher education staff and allows project leaders to work transparently and collaboratively on curriculum documents. The findings indicate that the value-based prioritisation of tasks within sprints and the regularity of meetings greatly aided in maintaining motivation and momentum. If academics are to demonstrate the needed dedication and focus to such projects, however, leadership must provide workload relief.



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