

That Synching Feeling: An Exploration of Student Engagement in an Online Environment

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Abstract

In response to the COVID-19 epidemic, universities were forced to shift to an online, remote delivery system. This paper presents the design and evaluation of two skills-based first-year units that were adapted to a predominantly asynchronous mode of delivery. The evaluation results indicate that student engagement was high, and that students felt well-supported by the strong teacher presence throughout their units. Furthermore, the impact of this engagement and support was evident in their final grades and the overall unit completion figures. These findings indicate that individualized support, teacher presence and flexibility are key factors in student success in an online environment. This suggests that asynchronous learning can be valuable to students from various academic backgrounds providing that the content and teacher are readily accessible in various formats and that the teachers are mindful of the complexities of students' lives outside of an academic setting.

Keywords: Online learning; student engagement; asynchronous; skills-based units; active learning; teacher presence.

Introduction

In the past two decades, the Australian higher education sector has sought to rapidly expand access to diverse and, at times, disadvantaged cohorts of students. Victoria University (VU) operates at the forefront of this agenda educating the highest proportion of students from non-English speaking backgrounds and the second highest proportion of low socioeconomic status (low SES) background students within the state of Victoria (McClusky et al., 2018). In 2018, VU introduced a radical new “block mode” of delivery (BMD) intended to better support diverse students as they transition into, through and beyond university. At the heart of this model lie two features - one unit is taken at a time, and all teaching is done in small-class, face-to-face settings (Kelly & Lock, 2019). Classes meet three times a week and are taught by a single staff member allowing for the co-construction of knowledge, the development of a supportive environment, and strong teacher-student bonds. Together, these features are intended to encourage high levels of student engagement.

The World Health Organization announced the outbreak of the global pandemic COVID-19 on March 11th, 2020 (WHO, 2020). As a result, policies of isolating populations and reducing movement were adopted worldwide. These policies had significant impacts on, amongst many other sectors, higher education (UNESCO, 2020). In Australia, such policies caused higher education institutions (HEIs) to convert from face-to-face to online and remote modes of delivery early in what is traditionally the first semester. Like all Australian HEIs, VU immediately sought to convert subjects for online delivery and to do so in ways that would maximise student engagement. VU was distinctive among Australian HEIs for two reasons. On the one hand, the scale of the challenge faced by VU in terms of the need to deliver engaging online learning was amplified by the diversity of the cohort that VU serves and the disproportionate impact of disruption from the pandemic on low SES families. On the other



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hand, and unlike most HEIs in Australia, VU's prior adoption of BMD allowed it to focus on the conversion of whole units to remote delivery, rather than on the conversion of semester-long units mid-way through their delivery.

The Complexity of Engagement in an Online Environment

Enhancing student engagement was an outcome central to VU's adoption of block model delivery (VU, 2017). Achieving this outcome, it was argued, would lead to improved retention and learning outcomes, particularly for students from non-traditional backgrounds (McCluskey et al., 2018). Such arguments are consistent with educational research regarding the concept of engagement and its positive effects (Tight, 2020). As Kahu (2013) has shown, however, this research has been complicated by confusion regarding how engagement should be conceptualised. In this paper, we concentrate on two categories of student engagement: engagement with learning activities and engagement with learning communities. The former refers to the quality and quantity of time and effort spent by students on educationally purposeful activities, and the latter to a student's interaction with their teachers and peers.

Online education offers students convenience in terms of accessibility and flexibility, but it also places certain demands on teachers interested in maximising student engagement in learning activities (Serdyukov, 2020). Research has shown that accessibility to and use of online learning technologies varies considerably across different cohorts of students (Devlin & McKay, 2016). Socially and economically disadvantaged students, in particular, have been shown to deeply value the flexibility that online learning can offer. Asynchronous components of online learning allow students to learn at times and places that suit them, and this can help support learning in contexts where employment and family responsibilities can render traditional face-to-face teaching inaccessible. Having said this, research also shows that such students tend to face barriers in terms of access to technology and can therefore benefit from the use of multiple modes of delivery (including, for example, content provided in audio, video and text formats), from the use of widely and freely available technological tools, and from the provision of personalised support (Devlin & McKay, 2016).

To meet the needs of diverse learners, teachers need to take into account a number of factors associated with online teaching and learning. The flexibility that online learning provides means that students engage with their learning primarily through a learning management system (LMS). Such systems, used to support learning in blended settings, take on a more demanding role in online settings as the primary mechanism through which learning activities are contextualised, delivered and supported. Serdyukov (2020) has argued that, given this, teachers should prepare self-guided lesson modules that introduce and deliver carefully curated learning resources. Such modules should focus on learner-centred facilitation, which requires teachers to anticipate student needs, coordinate resources, moderate interactions, and provide timely feedback (Ekmekeci, 2013; Jackson et al., 2010). However, a focus on the careful design of the online spaces through which learning activities and assessment tasks are delivered ought not overshadow the importance of the design of the activities and tasks themselves. For example, Ekmekeci (2013) has argued for the designing of asynchronous online units grounded in the systematic and modular development of assessment tasks and the incorporation of a sequential flow of activities. Regular and integrated assessment tasks are of particular importance for two major reasons. The first is that it has long been shown that assessed tasks are a key driver of student behaviour (Gibbs, 1999). The second is that regular points of feedback are a crucial means of monitoring engagement in online settings, where the immediacy of feedback on learner engagement and progress available in face-to-face settings is generally absent (Ekmekeci, 2013; Hwang & Song, 2018).

Engagement with learning communities, encompassing both student-teacher and student-student interaction, can be understood as being related to, though distinct from, learning activity engagement, and of similar importance (Bernard et al., 2009; Garas-York, 2020). In online education settings, engagement with learning communities can be challenging; students can experience isolation (Hwang & Song, 2018) and feel that their educator is not 'present' with them (Ekmekeci, 2013). Fortunately, there are a wide variety of technologies and mechanisms that can be used to enhance interaction and engagement. Research shows that employing diverse channels of communication, including audio, video and text modes of engagement, is crucial if students with varied access to technology are to be supported (Devlin & McKay, 2016). Opportunities for interaction between learners and teachers should be structured into the design of learning activities and assessment tasks. Such opportunities can be used to overcome the loss of a sense of immediacy of access to teachers arising from online study, particularly if they are used to respond to student queries and deliver feedback on assessment in a timely manner (Palloff & Pratt, 2003). In addition, learning resources can be tailored to enhance the sense of teacher presence as felt by students. Educator-created videos, used to communicate relevant material, can also increase in students the sense that the educator is engaged with the subject-matter,

motivate students to learn, and humanise the educator in the eyes of students (Pacansky-Brock et al., 2020). Finally, peer-to-peer engagement can be promoted in the context of online learning. Collaboration with peers helps to promote active and interactive learning, as students work together to construct knowledge, solve problems, and ask and respond to questions (Bernard et al., 2009). The careful design of learning activities and assessment tasks that prompt, support, and reward such behaviour, and the active support by teachers for student usage of technologies that are accessible and familiar to them, can enhance student engagement with instructors and with peers.

The Present Study

At Victoria University, two skills-based first-year units were redesigned for remote online delivery in response to the challenge of COVID-19. As a response to this disruption, curriculum designers were faced with a choice – to try to replicate the face-to-face unit design and delivery in an online forum, or to take a risk and engage in the rapid redesign of their units for asynchronous online delivery. In order to maximise the flexibility of learning for vulnerable students, the authors of this paper who are first-year teachers opted for the latter. In this paper, we present:

1. *the mechanisms employed to maximise student engagement with learning activities and with learning communities;*
2. *the evidence gathered regarding the value of these mechanisms; and*
3. *the implications garnered from this experience with regard to future teaching and scholarship.*

Methodology

This study was approved by the VU Human Research Ethics Committee (HRE 17-192).

Participants

For the quantitative data derived from the LMS there was a total of 824 participants. They comprised 314 students from HHH1000: *Interpersonal Skills and Communication* (ISC) and 114 students from HRE1000: *Evidence and Research* (E&R) in 2020; and 308 students from ISC and 88 students from E&R in 2019. Students were included from both 2019 and 2020 to allow for comparisons to be made between the spaces after the consolidation and redesign had occurred in response to online delivery. All students from 2019 undertook their studies in the face-to-face original LMS system and those in 2020 during remote learning in response to the COVID-19 lockdown. For the qualitative data derived from the student evaluation data there was a total of 145 participants. Participants were included in the study if they did not withdraw from the unit and engaged in opening the LMS at least once.

Unit Design

The two units presented in this paper were designed for online delivery to diverse cohorts of students and in response to the shift to remote learning. These two skills-based units aim to enhance the capabilities of students in a dynamic and personal manner. ISC aids students in developing a greater sense of self-awareness as they are introduced to basic clinical skills. E&R is designed to enhance the evidence literacy of aspiring healthcare practitioners. In pedagogic terms, these units are designed around the collaborative construction of knowledge. The key question underpinning the redesign was how best to create an engaging experience, conducive to student learning, that was accessible to all students during a time of upheaval. Table 1 presents the themes of accessibility, flexibility and engagement and considers how they are each addressed in relation to design, learning activities and learning communities.

Table 1*Summary of the Changes in Relation to the Core Themes*

	Online Design	Learning Activities	Learning Communities
Accessible	A modular approach was adopted: all content from one lesson was presented in a single, self-contained page that, once opened, included all the relevant information. Learning activities designed to be worked through sequentially.	Learning activities and content were presented in multiple formats (video, text). YouTube videos were utilised for information dissemination. This is a platform most students were familiar with, and it supports captioning, which can increase accessibility for ESL students.	Students were encouraged to choose their own methods of communication with both one another and staff (email, text, zoom). Google Docs were utilised to allow for real time collaboration and engagement between staff and peers
Flexible	A predominantly asynchronous design allowed students to complete the unit when and where they found most appropriate.	Students were able to schedule the completion of learning activities around the limitations imposed by work and family commitments	Staff were available via text and email during all working hours, with response rates <60 minutes
Engaging	A mix of content related, educator created videos, reflections, research activities and application tasks were incorporated into each module to build skills and knowledge and allow for the immediate application of content	A constructivist approach to learning was incorporated, wherein the educator facilitated and challenged students' learning and empowered students to take ownership of their own learning either individually or with their peers	A strong teacher presence underpinned the core design. The teacher created videos, coupled with the ongoing support and regular feedback allowed for strong relationships to be built between learners and teachers

LMS Space Design

In response to the change to remote delivery, a complete redevelopment of the online LMS spaces were undertaken. The outcome pursued through this redevelopment was the creation of learning spaces suited to asynchronous online learning, providing students with the ability to engage with their studies at times that suited them. A modular approach was utilised to make content highly accessible and logically sequenced so that progress could be pursued by students with ease and confidence. Content, instructions, advice and support were presented through the use of videos and text, allowing students to revisit materials to support their learning. To reduce the likelihood of passive engagement, video content was designed to be engaged with in interactive ways. Finally, limited but purposeful synchronous sessions were supported through the online design, providing opportunities for class reflection and discussion.

Promoting Engagement with Learning Activities

Educator-created videos, hosted in YouTube, were embedded throughout the LMS spaces in order to introduce, support, and model learning activities and assessment tasks. While this platform offers less extensive analytic tools than that hosted within VU's LMS, this approach was taken because of its potential to maximise accessibility for students. Use of YouTube is ubiquitous, and its captioning function supports users with different needs. To incentivise engagement, both units sequenced small, iterative assessment tasks that structured, supported, and rewarded the development by students of foundational knowledge. These tasks constituted 20% of the final grade for ISC and 30% for E&R. As well as structuring and rewarding student engagement in learning activities, these assessment tasks allowed staff to monitor student progress and engagement. Core assessment tasks were designed to be, as far as reasonable, "open-ended", to encourage students to take ownership of their work and to produce products that were as extensive and creative as possible (whilst also adhering to the criteria for each task). This allowed students some freedom to express their engagement with learning through extending their time-on-task for each piece of assessment.

Promoting Engagement with Learning Communities

When developing the two units for online delivery, the importance of establishing a safe and positive environment where students could express themselves and receive consistent, contextualised and constructive personal feedback was recognised. The role of the teacher as facilitator was understood as being paramount to this process. Steps were taken to ensure that teachers would be understood by students as being “present” in settings where students were working. Regular points of assessment enabled regular points of dialogue. From the outset, teachers designed for the provision of timely feedback for all tasks, generally within 24 hours of submission. Assessment tasks and feedback content were designed so that students would be able to apply learning in later tasks, increasing their confidence and sense of achievement. Furthermore, for group assessment tasks, because of its capacity to allow the educator to access collaborative group work “live”, and to observe the history of content creation and adaptation by groups, Google Docs was utilised.

Data Collection and Analysis

The quantitative component of this study involved the extraction of user progress data from the 2019 and 2020 LMS spaces and from YouTube analytics.

Firstly, the user progress data involved extracting the percentage of content students accessed within the space, what assessments they completed and their grades. To evaluate engagement in the space the percentage of content accessed was compared to the number of items in the space. Content was considered accessed if the students clicked on the link that opened the web page with the content on it. Independent t-tests were calculated to determine whether the differences between the 2019 and 2020 student cohorts for assessment completions and their final grades were significant.

Secondly, YouTube analytics were used to evaluate how many views each video received as well as how much of the video was consumed. In both units, videos were used to disseminate content knowledge and well as to explain assessment tasks. To acknowledge the differences in these types of videos they were evaluated separately.

Thirdly, there was a qualitative component to this study. Qualitative data were extracted from the institutional student evaluation surveys in 2020. This aimed to further explore students experiences with engagement in an asynchronous learning environment.

Results

Engagement with Learning Activities in Asynchronous Online Education

The 2020 user progress was compared to that from 2019. The results indicate that the use of a modular design principle to reduce the number of items in the LMS, to make the space more accessible and user friendly, appears to have been successful, with students in both units engaging with a larger portion of the material. While in both units the percentage of assessments completed was similar from year to year, there was an increase in students completing 100% of assessments in both units in 2020, with the increase in ISC being significant. Finally, the mean final grades were similar across the years, with an independent samples t-test indicating that the differences were not significant ($p > 0.05$). Table 2 displays the data.

Table 2*User Progress Data From 2019 and 2020 for Interpersonal Skills and Communication (ISC) and Evidence and Research (E&R)*

	Percentage of Content Accessed (2019)	No. Items in the LMS	Percentage of Content Accessed (2020)	No. Items in the LMS
ISC	46.6% (N=222)	76	95.1% (N = 314)	20
E&R	60.8% (N=138)	80	71.5% (N=114)	28
	Average Completion of Assessments 2019	Students Who Completed 100% of Assessments 2019	Average Completion of Assessments 2020	Students Who Completed 100% of Assessments 2020
ISC	74.1%	25.3%	71.2%	80.0%
E&R	96.4%	85.2%	98.7%	91.2%
	Mean Final Grade 2019 (SD)	Range	Mean Final Grade 2020 (SD)	Range
ISC	72.54 (12.44)	7 - 92	75.4 (8.77)	45-88
E&R	68.37 (12.55)	20-89	74.8 (9.54)	37-90

Engagement with the video content was evaluated using the data available from YouTube's analytics. The results indicate that there is variation with how the students from each cohort engaged with the videos. In ISC students watched the assessment videos more times but watched longer portions of the content videos. In E&R students watched the content videos more times but watched longer portions of the assessment videos. Table 3 shows the YouTube analytics for the videos used.

Table 3*YouTube Analytics for Videos Utilised in ISC (N=314) and E&R (N=114)*

Mean Number of Views		Average Portion of Videos Viewed (%)
ISC		
Overall	Total Views: 13,649	66.0%
Content Videos	435.14	82.65%
Assessment Videos	1387.5	38.55%
E&R		
Overall	Total views: 2,166	56.88%
Content Videos	249	45.0%
Assessment Videos	79.3	59.26%

Comments from the optional end of unit evaluation surveys indicated that students who completed these evaluations found the asynchronous module approach more engaging than synchronous video conferencing sessions, as is indicated in the following sample of quotes:

In these hard times this has been the only unit that has caught my attention. I have a lot of difficulty focusing when someone talks for 3 hours. This method was far better for me and motivated me to do my work with enthusiasm!

I think us, students, also really appreciated the structure of having drop-in sessions and informational videos being uploaded without having the conventional 3-hour workshops because it allowed much more flexibility with finishing up our report/worksheet. I think my group and I didn't have to attend the drop-in sessions because your responses via email were really quick and helpful, but we felt relieved that we had the additional support of the sessions in case we needed it.

Furthermore, students in the optional evaluation surveys also acknowledged that the self-paced and supportive nature that facilitated learning construction helped them become more academically confident. A select sample of comments are presented below:

The videos made are engaging; the content and assessments are relevant, and the workload is fair. Furthermore, I have been more confident as a result of your feedback and your availability.

The way *the educator* set up this unit was great! I could watch and rewatch his content as many times as I needed in order to understand. So far this has been the best class I have taken during covid. *The educator* also made the content incredibly entertaining and gave the most helpful feedback.

Engagement with Learning Communities in Asynchronous Online Education

A clear goal of the shift to asynchronous learning in these units was to provide students with the opportunity to receive continuous, personalised feedback throughout the unit. This feedback was delivered primarily using text through the LMS system. Comments regarding students' perspectives on this feedback were derived from evaluation surveys. A sample of students' quotes showcasing this appear below:

I appreciated that the feedback felt more like a conversation, being able to relate and connect with a teacher made this unit enjoyable. The feedback didn't just relate to the item that was submitted, so it felt like *the educator* was going on this journey alongside me.

I won't lie, when I initially began this unit, I was extremely skeptical of a unit without any classes. However, I can confirm *the teacher* truly went above and beyond for *their* students. Firstly, *their* devotion to communication was outstanding. *They* were extremely responsive and always gave the best advice to ensure I achieved the results I was aiming for. Whenever help was needed *the teacher* would always ensure my questions were answered fully and to the best of *their* ability.

The sample of qualitative data above, shows that students expressed a strong sense that their teacher was present in their learning and in meaningful ways.

Discussion

Maximising Student Engagement in an Asynchronous Online Environment

This project shows that high levels of engagement are possible in online and asynchronous modes of teaching within a university that caters to diverse and often disadvantaged students. In line with Ekmekci's (2013) suggestion, both LMS spaces were redesigned to be more user-friendly, allowing all content to be easily accessible. As a result of the content being reorganized into self-contained, sequential modules, a significant reduction in the number of components in each LMS space was seen when compared to the 2019 version. This resulted in an increase in the average rates of engagement with online material. These increases were matched by a higher proportion of students completing all assessment and activity tasks in each unit in the 2020 asynchronous, online versions. Each unit had regular points of feedback for students, allowing the monitoring of engagement by staff and increasing the motivation of students. Hwang and Song (2018) highlight the value in this, particularly in online settings, where feedback on class activities is not as readily available to students as it is in synchronous face-to-face formats.

Consumption of video content was patterned in complex ways. On the one hand, students watched many videos (or parts thereof) multiple times, highlighting the value of these resources to students. On the other hand, there is variation in patterns of use of these resources both within and across these units. This patterning largely followed unit design. For example, content videos in ISC serve to prompt engagement in assessment tasks, whereas assessment videos offered detailed support regarding the completion of those tasks. Students may, therefore, have had good reason to return to review the latter rather than the former. Alternatively, a series of assessment tasks in E&R shared a similar assessment design but addressed different content. Each task was supported by both an assessment introduction video and a content video. Given this design, students may well have ignored later assessment introduction videos (which reminded students how to complete that type of task) while using content

videos multiple times. Perhaps of more importance, qualitative feedback suggests the teacher-designed nature of these resources aided in the building in students of a strong sense of teacher presence. This is in line with research findings of Pacansky-Brock and colleagues (2020), who stated that teacher-created content can humanise the teacher, highlight their engagement with the content and assist in the motivation of students. Finally, qualitative data also highlights the teacher-created videos coupled with the availability of the teacher and the depth and frequency of feedback created a supportive environment that fostered student success. Despite expressing some initial apprehension regarding the different format, students reported increased levels of confidence and motivation as a result of their experience of this teacher presence. This experience of teacher presence as a direct result of the volume and frequency of feedback mirrors the findings of Palloff and Pratt (2003) who advocate for the deliberate designing of these interactions into curriculum and assessment.

Evaluating the Online Mechanisms Employed to Enhance Student Engagement

Attempts to compare the results of this project with prior, face-to-face iterations of the two units highlight some of the challenges and opportunities facing those interested in promoting student engagement in face-to-face, blended, and online settings. Changing the mode of delivery alters the context in which engagement is sought, but it may also lead teachers to pursue different forms of engagement, through different mechanisms, the success of which must be observed or measured in different ways. For example, the use of teacher-created content videos was shown here to promote high levels of student engagement, as was anticipated given the needs of VU's diverse student cohort. It was also easy to quantify, as video analytics show the number of views and watch-times. Alternatively, in blended delivery, such videos might be replaced by educator presentations and group dialogue, where a response to one student's question may address multiple students' unstated needs. Measuring engagement in this face-to-face context is not easy, and neither is the comparison of the successfulness with which each of these mechanisms is used. Similarly, teacher presence, so important to student engagement in learning communities (Ekmekci, 2013), might mean different things in these two settings. In the classroom, presence may be achieved through authentic engagement in group dialogue, whereas in an online setting, we have shown that teacher presence can be achieved through both the production of teacher-created videos, and regular written and verbal feedback. This study highlights the impact of mode of delivery and the importance it carries in informing curriculum design and delivery choices in order to create an engaging and inclusive learning environment, particularly when teaching in diverse classrooms.

While qualitative evidence suggests that the opportunity to use diverse communication technologies was welcomed by students, each means of communication tended to offer both advantages and disadvantages. In E&R, GoogleDocs was used to support collaborative work as it allows for the monitoring of students' contributions to group work (through its version history function), however, the ability to standardise this engagement across groups was limited. In ISC, a concerted effort was made to create an individualized, and personal experience between the educator and the student, however, this did come at the loss of the establishment of peer-to-peer learning communities. While students reported strong feelings of support regarding this approach, the question of how to better establish peer-to-peer communities to enhance this experience should be considered in the future. More generally, these findings illustrate that teacher choices regarding the use of means of communication and collaboration need to take into account the strengths and weaknesses of the options available to them.

This study has a number of limitations. First, the complexity of operationalising and measuring engagement must be acknowledged. What is observable quantitatively in an online space, is often evaluated qualitatively in a face-to-face setting. Aspects such as effort, interest, and enthusiasm present differently within each setting and thus, creating a meaningful comparison between the two is difficult. Thus, the findings cannot be used to explain all aspects of engagement. Second, not all aspects of the unit design were able to be evaluated. Standardizing the differences in the types/amount of work produced across the two units was not possible due to the diversity in module and assessment design. Moreover, evaluating the impact and effectiveness of peer-to-peer engagement supported in E&R was limited as a result of the flexibility offered to students. There, an emphasis on the flexibility of utilising various technologies to communicate limited the opportunities for monitoring of group collaboration. This was a design decision to enhance student engagement with their peers, by providing choice and acknowledging the diversity among groups, however, standardizing and measuring this engagement was beyond the scope of the present project.

Implications of the Findings

The findings of this project showcase that when designing curriculum, the mode of delivery should be a primary consideration when considering how best to present the content. Furthermore, and perhaps most importantly, the findings highlight that a “teacher presence” does not have to involve face-to-face, synchronous interaction to be meaningful. In fact, the qualitative evidence suggested that despite the lack of synchronous, verbal conversations, students felt highly supported in these units as teachers were able to provide continuous one-on-one feedback. While this study is of a smaller scale and the qualitative information is not extensive enough to draw any definitive conclusions, what we can infer is that when designing curriculum and delivery for non-traditional formats (like online, remote delivery) different pedagogical approaches should be considered to create the most engaging and inclusive environment possible for students. This is of particular relevance in situations like the pandemic where the student may not have chosen to undertake online studies exclusively, and thus may need more support than students choosing to enroll into an online degree.

The transition of these units to online delivery - as was the case across the higher education sector - was rapid and undertaken with some trepidation. Students, too, expressed their early skepticism that this type of unit could engage them and support their success. The evidence gathered here reinforces the observations of teachers engaged with these units; this mode of delivery supported strong student engagement with learning activities, developed in students a sense of relatedness to teachers, and enabled positive learning outcomes. Finally, it showcases that a strong teacher presence that fosters a supportive environment is fundamental to student engagement and success. In summary, the implications of these findings suggest that asynchronous learning can be valuable to students from diverse academic backgrounds providing that the content and teacher are readily accessible in various formats and that teachers are mindful of the complexities of students’ lives outside of an academic setting.

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