

A Conceptual Model for Developing Self-Directed Learning in Online Carousel Programmes

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Sumayah Ebrahim

ORCID: <https://orcid.org/0000-0002-0029-8607>

Faculty of Education, Department of Leadership and Management, University of Johannesburg, South Africa

sumayahe7@gmail.com

Suraiya Rathankoomar Naicker

ORCID: <https://orcid.org/0000-0003-3796-5028>

Faculty of Education, Department of Leadership and Management, University of Johannesburg, Johannesburg, South Africa

snaicker@uj.ac.za

ABSTRACT

As online education continues to expand, understanding how self-directed learning (SDL) develops within different course delivery structures has become increasingly important. This study examines SDL within fully online postgraduate programmes that utilise a carousel model of course delivery, characterised by short, sequential modules delivered in a fixed rotation. Using a qualitative case study approach, informed by a modified Community of Inquiry (CoI) framework as an analytic lens, data were collected through semi-structured interviews with 20 participants, including lecturers, teaching assistants, and students, across two postgraduate programmes within a single university department. The findings indicate that the accelerated structure of the carousel model presents significant challenges for SDL development, including time constraints, high cognitive demands, technological barriers, and variation in students' academic preparedness and engagement. Teaching practices and structured support mechanisms were shown to play a critical role in scaffolding SDL; however, an over-reliance on lecturer-directed instruction was found to limit opportunities for student autonomy and self-direction. In response to these findings, the study develops an empirically grounded, design-oriented conceptual model for building students' SDL capacity in online carousel programmes. The model conceptualises SDL capacity as a developmental capability shaped by the interaction of the learning environment, teaching practices, and the student role within accelerated online contexts. By offering a context-specific framework, this study contributes to understanding how SDL can be intentionally supported in intensive online programme structures.

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Introduction

The landscape of higher education has seen a notable expansion in online formats. As more programmes adopt digital delivery, there is growing interest in understanding how self-directed learning (SDL) occurs in online contexts (Mahlaba, 2020; Maphalala, Mkhasibe & Mncube, 2021). SDL supports learners in taking greater responsibility for their educational journeys by enabling them to plan, manage, monitor, and evaluate their own learning processes (Tekkol & Demirel, 2018; Van der Westhuizen & Golightly, 2019). Knowles (1975:18) defines SDL as “the process by which individuals take the initiative, with or without the assistance of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources, choosing and implementing learning strategies and evaluating learning outcomes.” In online environments, where traditional support structures are less readily available, SDL becomes particularly important as learners are required to rely more heavily on their own regulation, decision-making, and persistence (Song & Hill, 2007).

Within this context, the present study examines SDL within a fully online postgraduate programme organised using a carousel model of course delivery. Carousel programmes are characterised by short, sequential modules delivered in a fixed rotation, allowing students to enter at different points and progress through the programme in a structured sequence. While such models are increasingly used to improve flexibility and access, particularly for working professionals, their implications for students’ learning processes warrant closer examination.

The carousel model is relatively new within African higher education contexts and raises important questions about student preparedness, academic engagement, and learning support, particularly in settings marked by disparities in digital access, online readiness, and institutional resources (Mhlanga & Moloi, 2020). The university in this study, based in South Africa, adopted the carousel model to widen access for working professionals and international students. Internal reflections have highlighted benefits such as flexible entry points and continuity of study, alongside concerns related to workload intensity, student preparedness, and the depth of learning achievable within compressed timelines.

Although a growing body of research has examined SDL in online learning environments (e.g., Song & Bonk, 2016; Al Harrasi, 2023; Zhu, Berri, Koda & Wu, 2024), a review of the available literature did not reveal published studies that explicitly examine how SDL is experienced and supported within

programmes that utilise a carousel delivery model. Addressing this gap is important for understanding how programme structures shape SDL, and for informing the design of learning environments and support mechanisms within similar accelerated online contexts.

The research questions guiding this inquiry were:

RQ1: How do students experience SDL in online programmes that use a carousel model?

RQ2: What model can be conceptualised to support the development of SDL in an online programme that uses a carousel model?

By responding to these questions, this study aims to contribute insights into the relationship between carousel model programme structure and SDL and to offer guidance for the design of online learning environments that more effectively support student autonomy, engagement, and sustained learning in carousel model delivery contexts.

Literature Review

SDL in Online Learning Contexts

SDL has been widely recognised as a critical capability for success in higher education, particularly in online learning environments where learners are expected to manage their learning with greater independence (Tekkol & Demirel, 2018; Mahlaba, 2020). Research suggests that SDL enables learners to take ownership of their learning processes by setting goals, selecting strategies, monitoring progress, and evaluating outcomes (Knowles, 1975; Song & Hill, 2007). In online contexts, SDL is closely associated with self-direction, motivation, and persistence (Al Harrasi, 2023), as learners must navigate reduced face-to-face interaction and rely on digital platforms for engagement and support.

Despite its importance, studies consistently report that many students experience difficulty developing SDL in online programmes. Common challenges include limited interaction with peers and lecturers (Song, Singleton, Hill & Koh, 2004), inadequate technological competence (Song et al., 2004; Ferraro, 2020), poor time management (Al Harrasi, 2023), delayed lecturer feedback (Petrides, 2002), mismatched expectations regarding online study (Kebritchi, Lipschuetz & Santiago, 2017), and varying levels of academic readiness (Hung, Chou, Chen & Own, 2010). These challenges may constrain students' ability to regulate their learning effectively, particularly in programmes that demand sustained engagement and independent study.

Research further indicates that weaknesses in academic writing, critical thinking, and digital literacy can undermine students' confidence and capacity for SDL, leading to surface approaches to learning and reliance on external guidance (Song & Bonk, 2016; Zhu et al., 2024). These findings suggest that while online environments may require high levels of learner autonomy, many students enter such programmes without the skills or dispositions necessary to enact SDL effectively.

The Carousel Model of Course Delivery

The carousel model of course delivery emerged in response to the need for greater flexibility and access within fully online professional programmes (O'Dwyer, 2019). Early implementations introduced rotational module structures that allowed students to enter programmes at multiple points during the academic year and progress through a fixed sequence of short modules (Mancini, Cipher & Gangi, 2018). Institutions later adopted this model to accommodate diverse student needs, reduce attrition, and support learners managing competing professional and personal commitments (O'Dwyer, 2019; Phillips, 2023).

Structurally, carousel programmes consist of short, sequential modules delivered over compressed time frames, often ranging from six to eight weeks per module. This structure offers predictability and flexibility through defined entry and exit points, enabling students to pause and resume studies when necessary (Mancini *et al.*, 2018; Moodley, Wyk, Tive, Van Zyl & Cronje, 2023). However, research also highlights potential drawbacks associated with accelerated delivery, including increased workload intensity, reduced opportunities for sustained engagement, and constraints on deep learning and reflection (Colclasure, LaRose, Warner, Thoron & Roberts, 2018; Phillips, 2023).

Studies of accelerated and compressed courses suggest that condensed timelines may encourage strategic or surface learning approaches, as students prioritise task completion over conceptual integration (Floyd, Harrington & Santiago, 2009). These structural conditions raise important questions about how learning processes unfold within carousel models, particularly in relation to student autonomy, engagement, and self-direction.

Implications of the Carousel Model for SDL

The characteristics of a carousel model have direct implications for the development of SDL. On the one hand, navigating successive intensive modules, planning study trajectories, and managing re-entry points align with core SDL processes such as self-management, monitoring, and independent goal

setting (Knowles, 1975; Garrison, 1997). In theory, the carousel model may therefore create conditions that encourage learners to take an active role in organising and directing their learning. On the other hand, evidence from accelerated learning contexts suggests that time compression and continuous assessment demands may restrict opportunities for reflection, self-monitoring and integration of knowledge (Colclasure *et al.*, 2018; Ebrahim, 2024; Floyd *et al.*, 2009). These conditions may place additional cognitive and emotional demands on learners, particularly those who are less academically prepared or unfamiliar with online learning environments. As a result, students may become increasingly reliant on lecturer guidance and external prompts, potentially limiting the development of autonomous learning behaviours.

While research has explored SDL in online learning more broadly, limited attention has been given to how delivery structures such as the carousel model shape students' experiences of SDL. Notably, there is a lack of empirical research examining how SDL is enacted, supported, and constrained within accelerated online programmes that operate under fixed rotational structures. Addressing this gap is essential for understanding how learning environments, teaching practices, and student characteristics interact to influence SDL in carousel-based online programmes. For this purpose, the study adopts a modified Community of Inquiry (CoI) framework to guide the interpretation of how SDL is experienced and supported within an online carousel model of course delivery.

Theoretical Framework

This study is guided by a modified CoI framework, employed as an analytic and sensitising lens for examining key dimensions of online learning relevant to SDL in an online carousel model of course delivery. Rather than functioning as a deductive coding template, the framework informs the interpretation of participants' experiences by foregrounding relational dimensions of online learning relevant to SDL development in accelerated, rotational programme contexts.

The theoretical foundation of the framework is the CoI model originally proposed by Garrison, Anderson and Archer (2000), which conceptualises meaningful online learning as emerging through the interaction of three core presences: cognitive presence, social presence, and teaching presence. While the CoI framework has been widely applied in studies of online learning, subsequent research has argued that learner-driven processes, particularly those related to self-regulation, are not fully accounted for within the original three presences. Shea and Bidjerano (2010) proposed learning presence as an additional dimension to capture the metacognitive, motivational, and behavioural

processes through which learners manage and sustain engagement in online environments. The learning presence is incorporated as an explicit component of the Col framework in this study, foregrounding learners' self-regulation, self-management, and self-motivation in online learning contexts (Ebrahim, 2024). The framework is further adapted by conceptualising the learning environment as a distinct contextual element rather than as an additional presence. This adaptation recognises that the structural conditions of online learning - in this case, the intensive and highly compressed carousel delivery format - shape how the four presences (teaching, social, cognitive, and learning presence) manifest and interact.

The learning environment operates as the contextual architecture within which the four presences unfold, influencing their balance and effectiveness in supporting SDL (Ebrahim, 2024). Figure 1 presents the modified framework, illustrating the dynamic interaction of the four presences within a shared learning environment and their collective contribution to the educational experience in carousel-based online programmes.

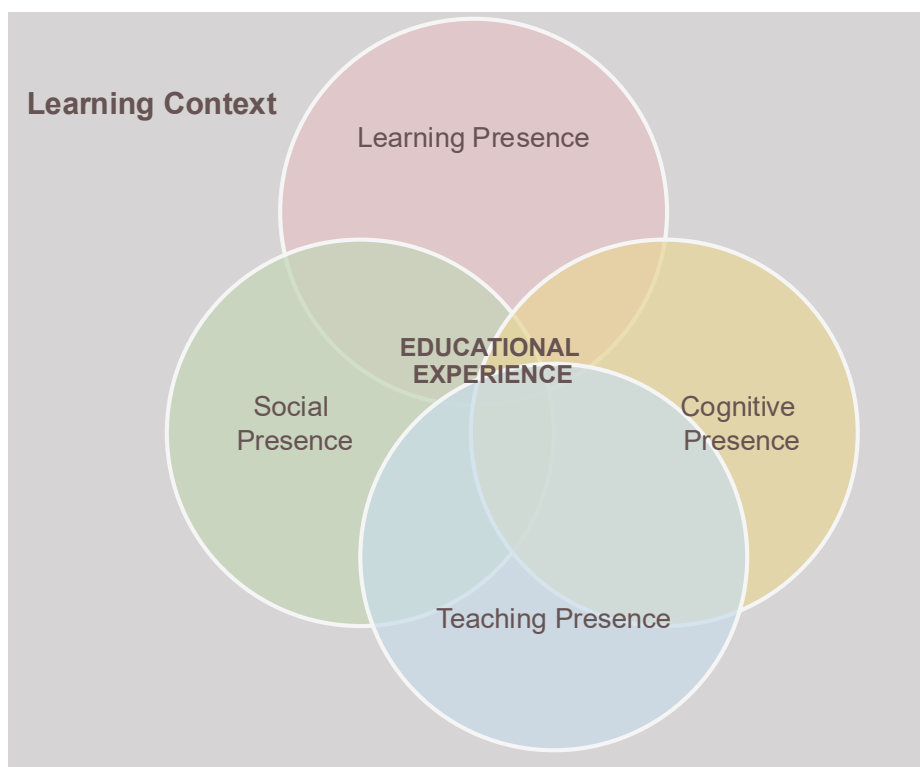


Figure 1: The modified Col framework (Ebrahim, 2024)

Learning Presence

Learning presence foregrounds the learner's active role in managing, directing, and sustaining learning in online environments (Shea & Bidjerano, 2010). It is conceptualised as the metacognitive, motivational, and behavioural processes that enable learners to regulate effort, maintain engagement, and take ownership of learning. In this study, learning presence is operationalised through two interrelated indicators: SDL and self-leadership (Ebrahim, 2024).

SDL encompasses learners' capacities for self-management, self-monitoring, and self-motivation, enabling them to organise workloads, regulate progress, and persist in an intensive online learning environment. Complementing this, self-leadership represents the internal strategies through which learners guide and motivate themselves, including behaviour-focused strategies, constructive thought patterns, and natural rewards. Together, these indicators reflect the proactive stance required of learners who must assume responsibility for their learning within a compressed, largely asynchronous carousel model.

Cognitive Presence

Cognitive presence refers to learners' ability to engage in structured inquiry and construct meaning through reflective and collaborative processes (Garrison *et al.*, 2000). It unfolds through four phases: triggering event, characterised by a sense of puzzlement; exploration, involving information exchange; integration, where ideas are connected; and resolution, evidenced through the application of new knowledge. In carousel-based programmes, compressed timelines and rapid module turnover may constrain learners' progression beyond surface-level engagement, making sustained cognitive presence particularly salient for deeper conceptual understanding.

Social Presence

Social presence captures the extent to which learners are able to present themselves as real and authentic individuals within the online learning environment (Garrison *et al.*, 2000). It comprises open communication, group cohesion, and affective expression, supported by indicators such as risk-free expression, collaborative engagement, and emotional support. Within carousel models, where cohort groupings and collaborative configurations shift frequently, social presence plays a critical role in fostering continuity, trust, and learners' confidence to participate and engage meaningfully.

Teaching Presence

Teaching presence encompasses the instructional design, facilitation, and direct instruction that structure the learning experience (Garrison *et al.*, 2000). It includes design and organisation, facilitating discourse, and direct instruction. These elements are particularly important in accelerated carousel contexts, where rapid module turnover requires clear structure, explicit expectations, and carefully scaffolded support to ensure that learners remain oriented and able to engage effectively with course demands.

Interrelationship of the Presences and SDL

Within the modified Col, SDL is positioned as the primary manifestation of learning presence, enacted through learners' self-directed and self-leadership capacities. However, SDL does not operate in isolation. Cognitive presence supports SDL by enabling meaning-making, reflection, and application of knowledge. Social presence contributes by fostering belonging, confidence, and willingness to participate, which are essential for sustained autonomous engagement. Teaching presence establishes the pedagogical and structural conditions that scaffold learners' progression toward greater independence.

In this way, the four presences operate interdependently within the learning environment, with learning presence foregrounding SDL and the remaining presences enabling, mediating, or constraining its development within the carousel model context. Table 1 provides a summary of the modified Col framework, detailing its elements, categories, and indicators.

Methodology

This study adopted a qualitative, constructivist approach, focusing on participants' interpretations of how SDL is experienced and supported within an online programme context (Creswell & Creswell, 2023). A qualitative case study design was used to examine SDL within postgraduate programmes delivered through a fully online carousel model. The case was defined as the implementation of this delivery model within one department at a South African university. At the time of the study, the institution was, to the authors' knowledge, the only university in South Africa to have implemented a fully online carousel model across selected postgraduate programmes. Introduced in 2020, the model was adopted by individual departments rather than institution wide. For this study, the case was bounded to one faculty and one department offering honours and masters programmes through the

carousel structure, providing a focused context in which participants had sustained exposure to the model.

Element	Category	Indicator
Learning Presence	Self-regulation	SDL <ul style="list-style-type: none"> • Self-management • Self-monitoring • Self-motivation Self-Leadership <ul style="list-style-type: none"> • Behaviour focused • Natural rewards • Constructive thought patterns
Cognitive Presence	Triggering event Exploration Integration Resolution	<ul style="list-style-type: none"> • Sense of puzzlement • Information exchange • Connecting ideas • Applying new ideas
Social Presence	Open communication Group cohesion Affective expression	<ul style="list-style-type: none"> • Risk-free expression • Encourage collaboration • Use of emoticons
Teaching Presence	Design and organisation Facilitating discourse Direct instruction	<ul style="list-style-type: none"> • Setting curriculum and methods • Sharing personal meaning • Focusing discussion

Table 1: Summary of the modified Col framework

Participants were selected using purposeful sampling to ensure the inclusion of information-rich cases (Patton, 2002). Criterion sampling (Nyimbili & Nyimbili, 2024) was applied to include only participants who had been involved in the online carousel programmes for at least one full academic year. This ensured that all participants had sufficient experience of the carousel structure to reflect meaningfully on its influence on SDL. The final sample comprised 20 participants: five honours students, five masters students, six lecturers, and four teaching assistants. Including both students and facilitators enabled the exploration of SDL from multiple perspectives.

Data were generated through individual semi-structured interviews conducted via the MS Teams platform. Semi-structured interviews provided a balance between consistency across participants and flexibility to explore individual experiences in depth. Each interview lasted approximately 60 minutes and focused on participants' experiences of learning, teaching, and support within the carousel model. Data analysis followed a thematic analysis approach, as outlined by Braun and Clarke (2006).

Transcripts were analysed iteratively to identify patterns and themes related to SDL and the carousel delivery context. Trustworthiness was enhanced through triangulation across participant groups (Patton, 1999), and member checking to confirm the accuracy of interview transcripts (Lincoln & Guba, 1985). Peer debriefing with a colleague from another university supported reflexivity and confirmability by providing an external perspective on analytic decisions (Shenton, 2004). Ethical clearance was obtained from the relevant university ethics committee. All participants provided informed consent prior to participation, and confidentiality and anonymity were maintained throughout the study.

Findings and Discussion

In response to research question one: How do students experience SDL in online programmes that use a carousel model? Table 2 shows the themes and sub themes that emerged from the data.

Theme	Sub themes
Barriers to student SDL development	<ul style="list-style-type: none"> • Compressed time frames and accelerated pace • Workload demands and constrained cognitive engagement • Competing personal and professional responsibilities
Student characteristics	<ul style="list-style-type: none"> • Variability in academic readiness and foundational skills • Patterns of engagement and learner preparedness • Misaligned expectations of online and SDL • Technological confidence and digital readiness
Teaching practices and the development of students' SDL	<ul style="list-style-type: none"> • Clarifying expectations and framing postgraduate learning • Creating supportive and psychologically safe learning environments • Scaffolding learning processes to support emerging autonomy • Instructional control and the tension between support and dependence

Table 2: Themes and sub-themes for Research Question 1

Theme: Barriers to Student SDL Development

Participants from all groups described the carousel model as demanding and fast paced, with the seven-week cycle creating sustained pressure to meet academic requirements. The intensity of the schedule, combined with a substantial volume of readings and assessment tasks, limited opportunities for deliberate engagement with course content. One lecturer noted that the programme was “highly intensive for the students ... it requires commitment on the part of everyone” (Lecturer C), while a student reflected that “seven weeks is nothing when you have to cramp up a whole module”, identifying limited time as their greatest challenge (Student P). Rather than engaging deeply with learning materials, students frequently adopted a reactive approach focused on task completion,

suggesting that the accelerated structure of the carousel model reshaped learning practices towards short-term performance rather than sustained engagement.

This pattern of reactive engagement was underpinned by persistent time constraints, which limited opportunities for preparation, reflection, and independent study, positioning time pressure as a central barrier to meaningful participation across participant groups. Rather than supporting deliberate planning and self-direction, these constraints appeared to compress students' engagement into short-term task completion, reducing space for reflective or exploratory learning. Lecturers and teaching assistants observed that the compressed structure limited students' ability to prepare for classes, participate meaningfully in discussions, and undertake independent study. As one lecturer explained, "many students are unable to contribute significantly to our lectures because they don't have the time to read the articles ... and to do their own self-study" (Lecturer E). This perception was echoed by teaching assistants, who described the module timelines as "too tight" (TA D). Students' accounts corroborated these observations, with one student stating that "time management is probably the most difficult thing ... you don't really get to the core of the subject" (Student O).

These time constraints also intensified students' experiences of workload and cognitive demand, shaping how learning tasks were approached and prioritised within the carousel model. This escalation was reflected across the dataset, with students describing reading strategically to meet assessment requirements rather than to deepen understanding. As one student noted, "sometimes you're trying to read just to get the assignment done as opposed to reading to learn" (Student T). A similar concern was expressed by Lecturer B, who cautioned that the carousel structure "risks superficiality of engagement", observing that some students simply "scrape through". This perspective was echoed across participant groups, as teaching assistants reported that limited time prevented students from engaging meaningfully with preparatory materials, while students themselves acknowledged struggling to move beyond task completion. The convergence of these perspectives indicates that superficial engagement was a broader pattern, rather than an individual perception, associated with the structural intensity of the carousel model.

Beyond programme structure and workload, students' capacity to engage was further shaped by personal and professional pressures that competed with academic demands and intensified barriers to sustained engagement. Students described significant life events, including health challenges, bereavement, and emotional distress, which disrupted their ability to focus on academic work. One student explained, "I'm a high-risk pregnancy... I would get very sick towards the time assessments

were due" (Student M), while another described struggling to concentrate after experiencing multiple family losses (Student K). Emotional strain was also evident in accounts of relationship breakdowns, with one student admitting that "the first thought every day is should I quit?" (Student S). Professional responsibilities compounded these difficulties, particularly for students in leadership roles. As one student explained, balancing teaching and extracurricular commitments made time management "quite difficult" (Student N), while a departmental head described time as "really, really difficult" to manage alongside family life (Student S). Together, these pressures limited students' capacity to sustain focus, organise learning activities, and persist with independent study, further constraining the enactment of SDL within the carousel model.

These accounts reveal how the accelerated pace of the carousel model, combined with heavy workload and competing personal and professional demands, created substantial barriers to the development of SDL. As a result, across lecturers, teaching assistants, and students, it was found that these pressures constrained students' ability to self-manage, engage deeply with content, and exercise the self-regulatory behaviours central to SDL. Interpreted through the modified Col framework, these barriers particularly undermine learning presence, which encompasses self-regulation, self-management, and self-monitoring (Shea & Bidjerano, 2010). The prevalence of surface-level engagement further points to challenges in establishing cognitive presence, defined as learners' ability to construct meaning through sustained reflection and discourse (Garrison *et al.*, 2000). Together, these findings illustrate how the pace and structure of the carousel model impede the autonomy and sustained engagement required for effective SDL.

Theme: Student Characteristics

While the carousel model presupposes a high degree of learner autonomy, participants' accounts revealed that students varied widely in their readiness to engage with SDL. These differences extended beyond academic ability to include engagement practices, expectations of online study, and confidence in navigating digital learning environments, all of which shaped how students experienced and responded to the demands of the programme.

Facilitators consistently described uneven levels of academic readiness, particularly in relation to postgraduate study skills, academic writing, critical thinking, and independent learning practices. One lecturer observed that "it's not a one size fits all. Some students are ready to hit the road running, others struggle along" (Lecturer A), a view reinforced by another academic, who characterised the cohort as "a mixed bag", noting that while some students were fully engaged, others "never find

themselves” within the programme (Lecturer B). Concerns about readiness for master’s-level study were further emphasised, with one lecturer remarking that “the proportion of master’s-ready students has greatly decreased” (Lecturer E), while another questioned whether some students were “competent to actually engage at the master’s level” (Lecturer B).

Teaching assistants corroborated these observations, particularly in relation to academic writing and referencing. One reported that “the academic writing skills are very, very low” (TA D), while another noted that students were “very weak in academic writing ... and referencing” (TA H). Challenges related to critical thinking were similarly identified, with Lecturer B suggesting that students who struggled in this area often “never recover”, despite attempts at academic support. The convergence of these perspectives across facilitator roles indicates that limitations in foundational academic skills constrained students’ capacity to engage effectively in SDL. Within the carousel model, such limitations appeared to restrict students’ ability to plan learning tasks, monitor progress, and engage independently with complex academic material, particularly under accelerated timelines.

These differences in academic readiness were reflected in how students engaged with the programme over time. Facilitators distinguished between students who demonstrated sustained commitment and those who struggled to engage consistently. As one lecturer explained, “we have two kinds of students ... the one who’s heavily committed ... and another group who don’t perform very well” (Lecturer E). This pattern was echoed by teaching assistants, with one estimating that “less than 5% will go through the content before the first contact session” (TA H). Students’ own accounts supported these observations, revealing gaps between students’ expectations and the realities of a fully online, SDL environment. Notably, some students expected greater flexibility and more explicit guidance from lecturers than the programme structure afforded.

Expectations of online learning emerged as a further point of convergence across participant groups. Students described uncertainty about what fully online learning entailed, with one reflecting, “I didn’t know what fully online actually really meant” (Student M), while another admitted expecting the programme to be “a little bit more flexible than what I experienced” (Student K). Lecturers observed that some students entered the programme anticipating levels of direct instruction comparable to face-to-face contexts, noting that “they want ... to be spoon-fed” (Lecturer J). Teaching assistants further reported that unmet expectations often surfaced in dissatisfaction with assessment outcomes, particularly when students compared current performance with prior academic success. These misaligned expectations shaped how students approached learning tasks, with some delaying

independent engagement or relying more heavily on facilitator direction, thereby limiting opportunities to enact SDL.

In addition to expectations and engagement practices, technological competence emerged as a further factor shaping students' capacity to participate effectively in online learning. Lecturers and teaching assistants identified limited technological skills as a barrier for some students, particularly those unfamiliar with online learning platforms. One lecturer observed that "quite a number of them are not tech savvy" (Lecturer C), while another noted that newer students "really struggle ... where to find what" (Lecturer I). Students reinforced these perspectives, with one describing computers as "stressful" and explaining that learning to navigate the platform had to occur "before any learning can happen" (Student M). These early technological challenges frequently delayed engagement with academic content and heightened anxiety at the outset of modules. As a result, cognitive effort was often redirected towards navigating the learning platform rather than engaging with course content, reducing early momentum for independent learning.

The findings indicate that students entered the carousel model with highly variable academic readiness, engagement levels, expectations of online learning, and technological competence. Hence, across students, lecturers, and teaching assistants, it was found that these characteristics significantly shaped students' ability to adapt to the demands of self-directed, online postgraduate study.

Interpreted through the modified Col framework, these triangulated findings have important implications for cognitive, social, and learning presence. From a cognitive presence perspective, weaknesses in academic writing and critical thinking constrained students' ability to engage in higher-order learning processes such as integration and resolution, which are central to meaningful knowledge construction (Garrison *et al.*, 2000). Facilitators' observations that some students struggled to recover academically once difficulties emerged were corroborated by students' own accounts of confusion and disengagement, suggesting that limited preparedness inhibited sustained reflection and critical inquiry. This interpretation aligns with research indicating that learners' ability to progress beyond surface-level engagement in online environments depends on both academic readiness and their capacity to engage productively in inquiry processes (Akyol & Garrison, 2011; Sadaf, Wu & Martin, 2021). When learners enter online environments with limited academic preparedness, sustaining reflective inquiry and higher-order engagement becomes more difficult, particularly in the absence of strong self-regulatory capacity (Shea & Bidjerano, 2010). Research on cognitive presence

suggests that such conditions can constrain learners' progression toward integration and resolution, thereby limiting opportunities for deeper learning (Akyol & Garrison, 2011).

Variation in engagement and preparedness also had implications for social presence. Social presence depends on learners' ability to project themselves as active participants within a learning community (Garrison *et al.*, 2000). Reports of limited preparation and inconsistent participation indicate that many students were unable to engage fully in collaborative learning activities, reducing opportunities for interaction and peer learning, particularly for those who struggled to adapt to the expectations of online study.

The findings also point to challenges related to learning presence, particularly in relation to self-regulation and learner autonomy. Learning presence foregrounds learners' capacity to plan, monitor, and manage their own learning (Shea & Bidjerano, 2010). The convergence of accounts across participant groups indicates that misaligned expectations about online learning, combined with technological difficulties and reliance on facilitator guidance, limited students' ability to enact these self-regulatory behaviours. When technological barriers dominated early learning experiences, opportunities for cognitive engagement and social interaction were further constrained, undermining students' confidence and willingness to take ownership of their learning.

These findings illustrate how student characteristics interacted with the structural demands of the carousel model to shape engagement with SDL. Within the Col framework, the interdependence of cognitive, social, and learning presence becomes evident, as difficulties in one dimension frequently amplifies challenges in others. This highlights the importance of targeted academic, technological, and transitional support to enable students to engage more effectively in SDL within fully online postgraduate programmes.

Theme: Teaching Practices and the Development of Students' SDL

Participants described a range of teaching practices that shaped students' engagement with SDL, revealing both supportive and constraining influences within the carousel model. Across lecturers, teaching assistants, and students, these practices were positioned as central to how students interpreted postgraduate expectations, navigated learning tasks, and either developed or struggled to develop independence as learners within the accelerated programme structure.

Lecturers frequently emphasised the importance of preparing students mentally for the academic demands of postgraduate study. One lecturer described explicitly working through National Qualifications Framework (NQF) levels with students to clarify expectations, explaining that this process helped students understand assessment criteria and feedback: “this is what is expected of you ... you understand why you do well, and you understand why you don’t do well” (Lecturer B). This emphasis on transparency and expectation-setting functioned as a form of academic orientation, reinforced through encouragement of intrinsic motivation, with the same lecturer framing learning as “learning for its own sake ... to enhance our intellectual engagement” (Lecturer B). Students’ accounts supported the value of such practices, indicating that clarity around expectations reduced uncertainty and enabled a more deliberate approach to learning tasks rather than reactive compliance.

Beyond clarifying expectations, lecturers also described attending to the affective dimensions of learning. Creating a positive and supportive learning environment emerged as an important pedagogical strategy. Lecturer C highlighted the importance of fostering a space where students feel comfortable and engaged, noting that learning should be experienced as something students can “actually enjoy ... even if we are students and as we are learning” (Lecturer C). This emphasis on relational safety appeared to lower emotional barriers to participation, a perception echoed indirectly by students, who described feeling more confident to engage when the learning environment felt inclusive and non-threatening.

Within the context of accelerated delivery, structured guidance featured prominently as a further teaching strategy. One lecturer described pacing students’ workload and providing explicit guidance on how much time should be allocated to tasks, explaining that “I actually put like how many hours are expected for them to work on it every day or a week” (Lecturer I). Group discussions were also used as a pedagogical tool, with the same lecturer noting that these spaces allowed students to encounter “different layers of interpretations”, which helped deepen understanding (Lecturer I). Other lecturers described adopting scaffolded approaches aimed at simplifying complex concepts, with one stating, “I will always start by making everything as simple as I can” (Lecturer C). Collectively, these practices functioned to orient students within demanding modules while modelling strategies for engaging with complex academic material.

Students’ accounts suggested that these teaching practices often shifted the focus from content delivery to learning processes. One student reflected that lecturers did not always provide direct answers but instead focused on “how to learn ... how to get your own strategies in order for you to be

able to learn” (Student M). Although initially challenging, this pedagogical stance required students to make decisions about how to approach tasks independently, aligning with the gradual development of SDL skills.

Personalised academic support further shaped students’ learning experiences, particularly through the role of teaching assistants. Teaching assistants described spending time clarifying expectations around critical engagement, offering examples, and meeting with students individually to address misunderstandings. One assistant recalled supporting a student who “really didn’t understand what critical engagement is”, explaining how one-on-one discussions helped students gain confidence and clarity (TA D). Students corroborated these accounts, describing teaching assistants as approachable and supportive. One student noted that follow-up conversations around feedback were “very helpful” in making sense of assessment comments (Student K), while others emphasised that detailed, constructive feedback helped them recognise gaps in their work and reflect more meaningfully on how to improve (Students P and L). These interactions appeared to function as transitional scaffolds, supporting students while they developed greater independence.

At the same time, participants also described teaching practices that constrained the development of SDL. Several lecturers acknowledged that, despite the intention to promote learner autonomy, teaching within the carousel model often relied heavily on lecturer-directed practices. One lecturer observed that “the managing of the learning is handled by both the lecturer and the student”, describing frequent reminders via Blackboard and WhatsApp as a routine part of teaching (Lecturer C). Another lecturer echoed this view, noting that significant effort was required to monitor student participation and ensure compliance with course requirements, including “chasing” students to join groups or complete tasks (Lecturer I). While these practices supported progression within compressed timelines, they also appeared to externalise responsibility for learning management.

Students’ accounts aligned with these observations, with some expressing a preference for explicit guidance. One student stated, “I want to be told what I’m going to be learning, how I’m going to be learning, when and why” (Student S). This reliance on direction was further complicated by inconsistencies across lecturers. Students described variation in teaching styles, noting that some lecturers “went the extra mile” in offering guidance, while others resisted what they perceived as “spoon-feeding” (Student O). Another student contrasted modules where expectations were made explicit with those where students were expected to “find your way”, describing these differences as confusing and uneven (Student P). Such inconsistencies appeared to shape students’ willingness and capacity to assume responsibility for their learning.

Interpreted through the Col, these teaching practices have important implications for teaching presence, cognitive presence, and learning presence. Practices such as clarifying expectations, scaffolding tasks, facilitating discussion, and providing personalised feedback align strongly with teaching presence, particularly in relation to instructional management and direct instruction (Garrison, *et al.*, 2000). These strategies supported students' understanding of academic standards and encouraged engagement with learning processes rather than surface task completion.

However, the reliance on continuous reminders and lecturer monitoring suggests a misalignment between teaching presence and the development of learner autonomy. While teaching presence is essential for structuring learning experiences, excessive reliance on lecturer-directed practices may limit opportunities for students to develop self-regulation and self-management, key components of learning presence (Shea & Bidjerano, 2010). The need for frequent external prompts indicates that many students struggled to assume responsibility for managing their own learning.

The findings also point to challenges in the development of cognitive presence within the carousel model. The repeated need for lecturers and teaching assistants to explain concepts or respond to procedural questions suggests that some students struggled to progress beyond the exploration phase of learning towards integration and resolution, which are central to higher-order knowledge construction (Garrison *et al.*, 2000). This pattern reflects broader concerns in online learning research that learners often remain at surface levels of engagement, exchanging information without advancing to deeper reflection, synthesis, and independent inquiry (Vaughan & Garrison, 2005; Pool, 2014). Within the fast-paced and highly structured carousel model, these challenges appeared to be amplified, as accelerated pacing reduced opportunities for sustained inquiry and reflection (Akyol & Garrison, 2011). In such contexts, lecturers may feel compelled to intervene frequently to keep students on track, a dynamic that can inadvertently reinforce dependence rather than autonomy. As Garrison (1997) argues, in learning environments heavily shaped by instructional control, learners may struggle to assume full responsibility for their learning.

The findings presented in response to Research Question 1 demonstrate that students' experiences of SDL within the carousel model are shaped by a complex interplay of structural conditions, learner characteristics, and teaching practices. Across the three themes, the accelerated pace of delivery, variations in student preparedness and engagement, and the nature of pedagogical support collectively influenced students' capacity to self-manage, self-monitor, and sustain autonomous learning. While teaching practices often provided essential scaffolding that enabled participation and

progression within compressed timelines, they simultaneously revealed tensions between support and independence. Interpreted through the modified Col framework, these findings highlight how imbalances between teaching presence, learning presence, and cognitive presence can both enable and constrain the development of SDL in accelerated online contexts.

Taken together, these findings provide a robust empirical foundation for addressing Research Question 2, which focuses on the conceptualisation of a model to support the development of SDL within online carousel programmes. While the modified Col framework offered a valuable analytic lens for understanding the dynamics shaping students' learning experiences, the findings also point to the limitations of explanation alone. Specifically, they signal the need to move towards a design-oriented response that addresses how SDL capacity can be intentionally cultivated within highly structured and time-constrained environments. The following section therefore builds on these insights to propose a model that responds directly to the pedagogical tensions identified and seeks to balance instructional support with the gradual development of learner autonomy.

Towards a Model for Building Students' SDL Capacity in Online Carousel Programmes

This section presents a conceptual model developed to support the intentional cultivation of students' SDL capacity within online carousel programmes. Grounded in the findings of this study, the Model for Building Students' SDL Capacity in Online Carousel Programmes (Figure 2) responds directly to the pedagogical conditions associated with accelerated, seven-week module delivery.

While the modified Col framework provided a robust analytic lens for interpreting students' learning experiences within the carousel context, the findings demonstrated that explanation alone was insufficient to address the central challenge of how students develop SDL capacity under conditions of time compression, high workload intensity, and continuous assessment. Even with contextual adaptation, the Col framework primarily functioned as a diagnostic tool, illuminating the presence or absence of key learning conditions rather than offering guidance on how SDL capacity might be intentionally developed over time. The analysis therefore indicated the need for a design-oriented, developmental model capable of guiding pedagogical practice within these constraints. The proposed model extends beyond analytic interpretation to offer a context-specific conceptualisation of how SDL capacity can be cultivated within accelerated online carousel programmes.

Within this model, SDL capacity is defined as students' developing ability to plan, monitor, regulate, and sustain their learning in intensive online contexts. Crucially, SDL capacity is conceptualised not as a fixed learner attribute, but as an emergent capability that develops through interaction with the learning environment, teaching practices, and students' enactment of their learning role. The model identifies three interdependent and relational components - the learning environment, teaching practices, and the student role - which collectively shape the conditions under which SDL capacity can strengthen or be constrained.

This relational conceptualisation is particularly significant given the structural conditions of carousel programmes. The model explicitly acknowledges that core features, including compressed timelines, accelerated pacing, continuous assessment cycles, and high cognitive demands, are largely fixed and cannot be readily redesigned. Rather than attempting to remove these constraints, the model focuses on how SDL capacity can be intentionally cultivated within them through coherent alignment across environmental design, pedagogical practice, and learner engagement. SDL capacity strengthens when expectations, support mechanisms, and learner responsibilities reinforce one another, and weakens when these elements are misaligned or contradictory.

The learning environment establishes the foundational conditions for SDL development. Within the proposed model, this includes structured orientation processes introduced at the outset of carousel delivery, such as mandatory self-paced modules that explicitly address SDL principles, academic literacies, critical engagement, and navigation of the learning management system (LMS). The explicit articulation of postgraduate expectations, aligned to the relevant NQF level, functions to reduce uncertainty and cognitive overload, enabling students to engage more deliberately with learning demands. Importantly, these environmental structures are conceptualised as capacity-building infrastructure rather than remedial support. LMS features that enable planning, progress tracking, access to feedback, and timely communication further function as structural enablers of SDL, supporting students' ability to monitor engagement and regulate learning within compressed module timelines.

Building on these environmental conditions, teaching practices operate as a mediating force between the learning environment and students' developing SDL capacity. The findings indicate that effective teaching in carousel contexts involves clear expectation-setting, intentional pacing, task scaffolding, formative feedback, and the facilitation of collaborative learning. Within the model, teaching practices are explicitly oriented towards the gradual transfer of responsibility from lecturer to student. Early

stages of module delivery may require higher levels of structure and guidance; however, as students gain familiarity with expectations and processes, pedagogical support is progressively withdrawn in favour of prompting reflection, strategic decision-making, and self-regulation. While teaching presence remains essential in accelerated online contexts, the model foregrounds the tension between providing necessary structure and avoiding excessive directive support that may inadvertently inhibit the development of learner autonomy.

The effectiveness of these teaching practices is contingent on appropriate pedagogical capacity among teaching staff. Professional development for lecturers and teaching assistants is therefore positioned as a critical enabling condition within the model. Facilitating SDL in accelerated online environments requires expertise that extends beyond content delivery to include the design of learning experiences that promote autonomy, reflection, and self-regulation under time constraints. Without such expertise, well-intentioned support may unintentionally reinforce dependence rather than capacity development.

The student role constitutes the third interdependent component of the model and foregrounds learner agency in SDL development. Students are positioned as active participants responsible for goal setting, time management, reflective engagement with feedback, and the strategic use of learning resources. The model recognises that students may not initially enact this role effectively, particularly within accelerated programmes that attract learners with diverse academic backgrounds and levels of preparedness. SDL capacity therefore develops progressively as students engage with orientation activities, build awareness of their strengths and learning needs, experiment with personalised learning strategies, and refine their approaches over time. Reflective practices, peer engagement, and the purposeful use of digital tools are conceptualised as mechanisms through which students monitor progress and adapt their learning strategies in response to competing academic, professional, and personal demands.

These three components underscore that SDL capacity does not reside within any single element of the learning system. Coherence across the learning environment, teaching practices, and student engagement strengthens students' ability to engage autonomously within intensive online programmes, while misalignment across these components constrains SDL development. Although informed by established theoretical perspectives such as the Col framework, the proposed model represents a distinct contribution by offering a developmentally oriented, context-specific conceptualisation of SDL capacity tailored specifically to online carousel delivery.

The Model for Building Students' SDL Capacity in Online Carousel Programmes, as illustrated in Figure 2 below, therefore provides both a conceptual lens and a practical framework for understanding how SDL can be intentionally cultivated within fully online, accelerated learning contexts.

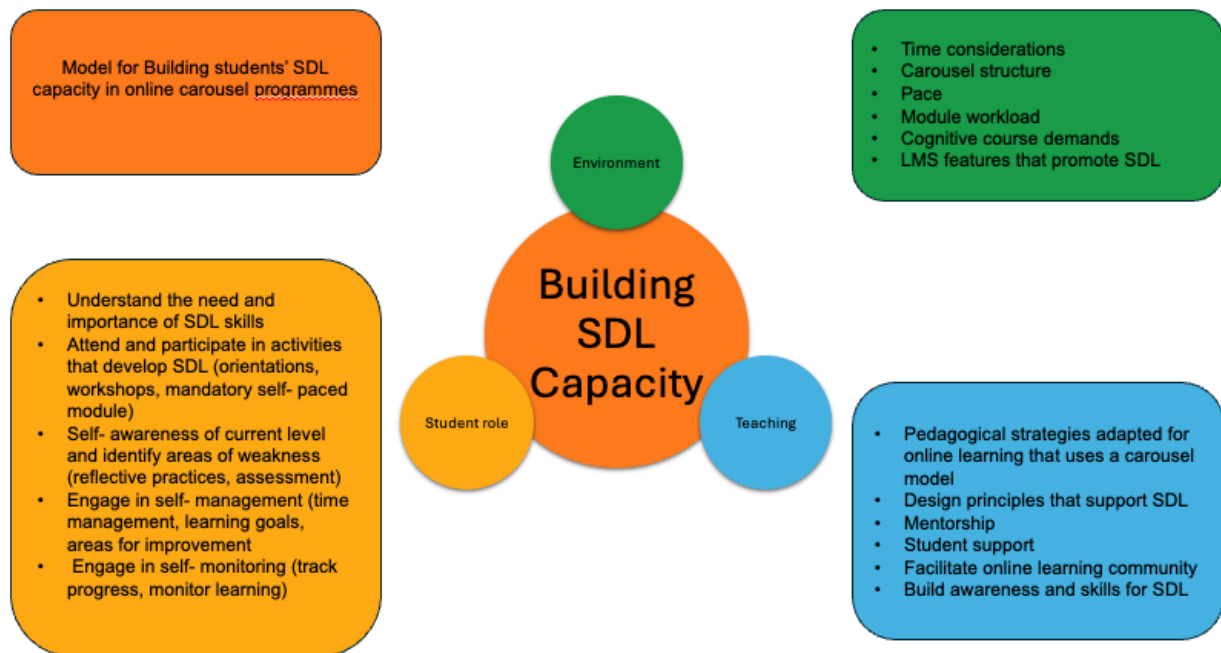


Figure 2 illustrates the dynamic interaction between the learning environment, teaching practices, and the student role in the development of students' SDL capacity within online carousel programmes. SDL capacity is conceptualised as an emergent outcome shaped by alignment across these components under accelerated delivery conditions.

How to Read the Model

Figure 2 should be read as a developmental and relational model, rather than a linear or prescriptive sequence. SDL capacity is positioned at the centre to emphasise that it is not assumed at entry but gradually developed through the interaction of three interdependent components. The learning environment represents the structural and institutional conditions of carousel delivery that shape students' initial engagement with SDL demands. Teaching practices function as a mediating mechanism that translates these structural conditions into learning experiences through intentional scaffolding and the gradual release of responsibility. The student role foregrounds learner agency, highlighting the behaviours and strategies through which students actively build SDL capacity over time. The bidirectional arrows indicate that SDL development is iterative and dynamic, with

misalignment across components constraining capacity development and coherence strengthening autonomous engagement. The model is intended to guide programme design and pedagogical decision-making in accelerated online contexts, rather than to function as a universal theory of learning.

Conclusion

This study examined the development of SDL within a fully online postgraduate programme utilising a carousel model of course delivery. Using a qualitative case study approach informed by a modified Col framework, the study explored how students experience SDL under conditions of accelerated, seven-week module delivery. The findings demonstrate that SDL development in carousel-based online programmes is shaped by a dynamic interplay between structural conditions, teaching practices, student characteristics, and the broader learning environment.

The findings indicate that the structural features of the carousel model, particularly compressed timelines, accelerated pacing, continuous assessment cycles, and high cognitive demands, place sustained pressure on students' capacity to plan, monitor, and regulate their learning. These pressures are further intensified by variation in students' academic preparedness, engagement practices, expectations of online learning, and technological competence. While structured support, clear expectations, and pedagogical scaffolding were shown to enable SDL development, the findings also revealed tensions within teaching practices. Specifically, overly directive approaches, although often well intentioned in accelerated contexts, risk constraining opportunities for students to assume responsibility for their learning and to develop autonomy over time. Interpreted through the modified Col framework, these findings highlight challenges related to learning presence, as well as the interdependence of cognitive, social, and teaching presences in shaping SDL experiences in time-compressed online environments.

A central contribution of this study is the development of the *Model for Building Students' SDL Capacity in Online Carousel Programmes*. Grounded in the empirical findings, the model conceptualises SDL capacity as a developmental capability rather than a pre-existing learner attribute. It positions SDL capacity as emerging through alignment across three interdependent components - the learning environment, teaching practices, and the student role - operating within the largely fixed constraints of accelerated online delivery. By explicitly foregrounding time compression, workload intensity, and pedagogical mediation, the model extends existing perspectives, including the Col

framework, and offers a practical conceptual tool for informing programme design and pedagogical decision-making in accelerated online contexts.

The implications of this study are both conceptual and pedagogical. Conceptually, the study contributes a situated model that clarifies how SDL capacity can be intentionally cultivated within online carousel programmes, advancing understanding of SDL as a process that develops over time through structured support, pedagogical mediation, and learner engagement. Pedagogically, the findings underscore the importance of deliberate orientation processes, intentional scaffolding, coherent use of LMS features, and the gradual transfer of responsibility from educators to students. While institutions and educators play a critical role in establishing enabling conditions, the development of SDL ultimately depends on students' active participation in reflective, self-regulatory, and strategic learning practices.

In conclusion, this study contributes to ongoing debates on SDL and online programme design by offering an empirically grounded, context-sensitive model that reflects the realities of accelerated course delivery. By moving beyond explanatory frameworks towards a design-oriented response within this specific context, the study provides both conceptual clarity and practical guidance for supporting SDL in fully online, time-compressed programmes. Future research may explore the application of the model across diverse institutional contexts, disciplines, and delivery formats, as well as its use in informing the design, implementation, and evaluation of interventions aimed at strengthening SDL capacity in online learning environments.

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