Transforming Learning Support in ODFL: Lessons Learned in Creating the LESS Model

Dr Lynnette Brice, Open Polytechnic | Te Pūkenga
Dr Alison Harrison, Open Polytechnic |Te Pūkenga
Alan Cadwallader, Open Polytechnic | Te Pūkenga

Abstract

The purpose of this paper is to share insights gained from the discovery, design, and delivery phases of creating a three-tiered model of non-academic learning support in open, distance, and flexible learning (ODFL): "Learner Engagement and Success Services (LESS)", at Open Polytechnic | Te Pūkenga, New Zealand. Presented as a case study, this paper discusses the early vision of the model, examines current understanding relating to learner support and engagement, and describes the successes and challenges faced in bringing this vision to reality. It outlines challenges relating to the emergent use of learning analytics (LA) in identifying "exception" learners, the contestability of ethical use and choices of data, and the rapid evolution and devolution of commercially available communication tools. The tiered model is described as a scalable blend of human and technology-enabled interventions and services, underpinned by the values of agency and equity. The components of this model could be replicated, and its success is measurable.

Keywords: learning analytics; student engagement; distance education; student progress; student support

Introduction

The Open Polytechnic | Te Pūkenga is New Zealand's leading tertiary distance learning organisation. It has over 30,000 learners enrolled in programmes and courses from Foundation Level 1 certificates through to diplomas and degrees at Level 7. In 2016, the organisation underwent a transformation that aimed to ensure a future learning experience driven by learners' needs and desires. This is essentially a "learner driven" model, a value that aligns with the NZ Tertiary Education Strategy, Objective One: Learners at the Centre (NZ Government, 2020). The transformation vision described key features of an ideal learning experience, which included a model of tiered learning support. This paper describes the development and challenges of implementing this model, which came to be known as "Learner Engagement and Success Services (LESS)".

Online learning engagement and support: Theoretical understanding

In considering learning support, Simpson (2012) and Tinto (1993), provide some important ideas about retention and retrieval that transfer to a distance learning environment. Tinto points to both the limits of institutional actions and the responsibilities of those institutions, highlighting that learners may leave for both academic and non-academic reasons. This theory determines that when reasons are non-academic, there will be situations that institutions cannot influence. These are usually events that occur in learners' broader lives. When learners are able to leave for

academic reasons, institutions have a responsibility to accommodate and provision the mechanisms that enable them to succeed.

Simpson (2012, p. 106) offers this retention formula for learner success:

$$S = AC + Eid + (E + C) PaM1$$

According to this view, student success is facilitated through appropriate course choice, plus early identification of vulnerable learners, plus continuous and proactive motivational support. This formula emphasises the early, on-boarding phase of the learner journey as mitigation for the potential effects of root causes of situational, dispositional, institutional, and epistemological attrition. These ideas, and other evidence of the value of an institutional role in influencing learner retention (Thistoll & Yates, 2016; Panda, 2023; Louwrens & Hartnett, 2015), informed our early vision and development of the tiered model. In particular, the Open Polytechnic sought to fulfil and reach beyond its institutional responsibility with a model designed to meet the needs of a vastly divergent adult, online learner population—intentionally seeking to positively influence learner behaviour towards successful outcomes.

Early design investigations found few existing models of learning support or technology-driven solutions in ODFL that could be replicated. Much early research on learning support was based on on-campus and (increasingly) blended modes of delivery. Because all Open Polytechnic learners study from a distance, the use of traditional face-to-face support services and strategies is limited. Panda (2023) highlights the need for action and changes in learning support to keep pace with technology-enabled delivery, the changing nature of learners, and environmental changes. Such frameworks need to be individualised, interactive, accessible, and cross-functional. The concept of engagement in learning is also found to be contestable and multifaceted (Brown et al., 2019). This is more complex in an ODFL environment where we continue to contend with the questions of how and what should be measured, and how and what is required for support.

Some emergent support models target specific groups of learners. One example is the TRIO model in Georgia. This model identifies "non-traditional" learners (Bennett et al., 2021), who are known by certain characteristics to be at risk of not completing a course or programme of study. Similarly, predictive learning analytics models (PLA) implemented in distance learning environments provide "risk profiling" built on "student indicators" (Herodotou et al., 2020). Such models are specifically oriented to meet the needs of pre-defined groups of learners but do not account for the needs of other groups or individuals. Typically, this type of model provides data to teachers and support staff but is not shared with the learners themselves (Herodotou et al., 2020).

Brown et al. (2019, p. 138) describe a multidimensional perspective of engagement that encompasses the recognition of "confidence, motivation, culture, and life experiences" as equally influential in learner engagement. This view recognises the emotional, cognitive, and behavioural aspects of engagement and considers the ways in which these can be measured (e.g., learning management system [LMS] reports on access, downloads, in-course posting, and times and quantity of online activity). This data is easily available and gives clear insight into behavioural engagement (and to some extent, through assessment data, cognitive engagement) but provides very limited understanding of emotional engagement.

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1 S = success; AC = appropriate course choice; Eid = early identification of vulnerable students; (E+C)PaM = early and continuous proactive motivation support

Kahu (2013) takes the multidimensional perspective further, and proposes a more comprehensive framework for engagement that places the learner at the centre, within the complex social and political environment of culture, power, politics, and economics. This framework clearly shows that learner engagement reaches beyond individual characteristics and behaviour to include institutional characteristics and behaviour, while all are firmly embedded in, and influenced by, socio-cultural context. Multidimensional framing calls into question Tinto's assertion that an insitution cannot influence retention in life event situations. An adult learner, the institution, and the social and political milieu are intrinsically connected; therefore the institutional responsibility for retention extends beyond the academic environment.

The discovery phase

Increasingly, ODFL has moved towards solutions that identify characteristics of supposed at-risk individuals and groups. In the discovery phase, this was our own starting point. These characteristics typically draw from a range of static data points that include ethnicity, previous educational levels, age, gender, disablement, and social-economic factors and/or behavioural data that are derived from LMS interactions. As in the TRIO model (Bennett et al., 2021), the more characteristics attributed to a learner, the more likely they are to need supportive intervention services. While these models are shown, with limitations, to improve retention rates for the target groups, we questioned their ability to provide equitable access to services for all learners and were concerned that the use of pre-entry characteristics could be influenced by deficit theorising. Further, such models seemed to emphasise measurements that could be obtained easily, rather than exploring new measures, or seeking evidence that such usage does indeed positively influence learner experience (Prinsloo, 2023). They do not account for the dynamic and multidimensional nature of learners' development and behaviours (ibid). For these reasons, and in response to the sector's immaturity of understanding the ethical implications of using such analytics (particularly pre-entry static data), the Open Polytechnic chose to build on analytics derived from real-time in-course behaviour, arguably the most easily measurable engagement data (Bond & Bergdahl, 2023), as the basis for identifying learners who might benefit from an intervention. In our decision-making, the point of difference was, firstly, to interrogate the data of previously successful learner behaviour.

While the focus on learning analytics derived from in-course behaviour satisfies ethical concerns related to pre-identified characteristics, these would not satisfy or acknowledge the complex socio-cultural factors known to influence engagement and success. The Tertiary Education Strategy (TES) and New Zealand National Education and Learning Priorities (NELP) Objective Two: Barrier Free Access, demands institutional attention to identified priority learner groups, or those who have been previously disadvantaged in education. In Aotearoa New Zealand, these groups are Māori, Pasifika, and disabled learners. Our model therefore required inclusion of some pre-identified characteristics, creating further opportunity to provision additional responsiveness in ways that were mana-enhancing (recognising, strengthening, and respectful of an individual's personal prestige and power), while actively seeking to further empower their personal agency and self-determination) and protect the individuals in these groups.

In the first phase, a transformation blueprint gave us the high-level vision of non-academic learning support. Around this vision we took two branching actions, convening a community of practice from the Learning Delivery staff and a project team to identify technologies and data requirements. The community of practice developed sets of professional practice standards for academic staff members and student mentors. These standards were mapped to the Open Polytechnic Ako Strategy for Learning and Teaching. The professional practice standards set the expectations for an ideal learning experience as described in the blueprint and provided practical strategies and service ideals for academic staff members and student mentors in their work with learners.

From the development of these standards, a tiered model (see Fig. 1) emerged as a clear undertaking to honour learner agency while meeting multilevel needs. The model was formed in response to identified gaps in services, taking account of recurring queries or problems that surfaced through learner voice information and staff experience, through the interrogation and mapping of previously successful learner behaviour, and through the values, principles, and strategic priorities identified above.

We determined that a well-provisioned Tier 1, containing a range of self-help resources and tools, should serve the basic needs of most learners. Tiers 2 and 3 would progressively increase in responsiveness to higher levels of need while the numbers of learners in need would decrease, as, ideally, they found their needs met in Tiers 1 or 2. This tiering addressed both scale and organisational responsibility to provide adequate and efficient support mechanisms.

In the early discovery phase, we explored the foundation of what this tiered model would contain, and investigated several approaches and technologies for identification and communication with our "exceptions"—learners who showed in-course behaviour that deviated from the known pathway of previously successful learners. That there are "exceptions" is posited on the understanding that most learners navigate the online learning experience through the intuitive functions of the learning management platform, iQualify; the intentional design and development of our learning materials; and with the academic guidance provided by academic staff, without the need for further intervention. Defining "exceptions," those who couldn't find their way, or those who floundered along the way, proved challenging in a learning environment predicated on learner agency, where the choice of when and how to engage is entirely with the learner. This contest—between identifying learners who have lost their way and the flexible and open principles of ODFL— remains a persistent tension.

The second aspect of the discovery phase explored technologies that would deliver the information for those learners identified as exceptions to a team of mentors, who would initiate the intervention. This is where we floundered by moving too quickly to a single, off-the-shelf, commercially available communication platform tool when we had limited understanding of its capabilities, or, indeed, of our own requirements. In this process, we discovered such tools to be inappropriately oriented. They were essentially built to reach "customers" and maximise "sales", with little capacity to adapt to a service orientation, and limited evaluation of capabilities available. Further, as Prinsloo (2023) highlights, there are significant gaps in the knowledge base of how third-party tools navigate ethical and privacy concerns when transmitting human data. Choosing an existing, commercially available product drove decision-making to fit the capabilities of the product rather than the requirements of our project, compromising the integrity of our intentions and our values of ethics and equity.

As a further concern at this stage of the development, we found the sophistication of our analytics did not yet match the sophistication of human learners' capacity to own their engagement in ways that met their needs rather than our expectations. Our early assumption of being able to identify exceptions through binary-rule based behaviour and to channel those exceptions through a communications platform proved naïve. Such assumptions negate agency and the inherent unpredictability of being human, and vastly overestimate the capabilities of such commercially available communication technologies. Essentially, we chose an end-point solution without fully understanding the complexity of scale or nuance of learner behaviour.

The design phase

In the design phase we retraced our steps and abandoned commercially available communication tools as inadequate, focusing on how to identify exceptions by exploring the nuance of learning analytics more deeply. This analysis work expanded on binary behaviour-based rules which

eventually became known as "success criteria" (SC). Mapped against previously successful learner behaviour, success criteria identified critical signposts in a learner's journey, where, if successfully navigated, learners were likely to achieve successful outcomes.

Success Criterion 1 identified learners who were "new to Open Polytechnic." Following Tinto's (1993) views regarding early adjustments, these learners were identified as exceptions based on the understanding that those who had not previously studied online or by distance would benefit from personalised on-boarding intervention. For this first criterion, we built a specific intervention process based on the conceptual values of whakawhanaungatanga; encompassing warmth, welcome, relational connection and "everything you need to know to get started". This personalised and individualised intervention was delivered by a small team of contracted mentors at times negotiated with the individual learner, often outside office hours. Simultaneously, we developed the first set of data dashboards for the mentors to access relevant learner information. We continued to investigate, create prototypes, trial, and abandon technologies and communication tools. We also explored analytics that ran parallel to the learner journey (first 2 weeks, first 4 weeks, first assessment etc.) and identified further sets of success criteria informed by previously successful learner data. Tier 2 formed around our exceptions learners, those who deviated from the known behaviour of successful learners, to be resolved through proactive, technology-assisted, personalised intervention.

The delivery phase

In the delivery phase, the project work continued on two interconnected imperatives: enhancing learner analytics and using automation technologies. Learning analytics evaluation produced a refinement of the earlier binary rules to become seven sets of success criteria. Learners meeting these criteria were identified in a set of purpose-built PowerBI reports. For each criterion detailed processes, culturally responsive communications, and ways for measuring and reporting on the success/impact of the intervention strategies were developed. A learner-facing dashboard shared the same information with learners, showing the map or route taken by previously successful learners, with their own progress tracking alongside.

The second imperative combined learning analytics with automated communications, alerting learners to their risk and connecting them (where needed) with a mentor for additional services. In total, Phase 3 delivers information to the exception learner, provides direct connection with a mentor, records the progress of each interaction, and triggers the next required action.

The model brings technology and human intervention together. The choice to include a team of skilled mentors responding to the highest levels of need addresses the difficulty of being able to measure and act on the emotional aspect of the multifaceted perspective of engagement. In a sector that is increasingly preoccupied with exploring and extending the capabilities of AI—including the assumption of its ability to respond to learners' affective and motivational states (du Boulay, 2023)—the human aspect of the model provides a distinctively personalised level of engagement, supplemented by automated communications that satisfy the demands of scale and learner agency. Mentors respond to learner needs through carefully crafted processes designed to create a sense of warmth, welcome, community, social presence, and relationship—intentionally elevating and enhancing feelings of safety in the online environment, identified (Louwrens & Hartnett, 2015) as a key component in engagement and success. Frequent comments from learners speaking with mentors include "Are you a real person?" which attests to the value of a human-to-human response in times and situations of personal difficulty, when an artificially intelligent response will not suffice.

The LESS model in detail

The LESS model has three tiers of services and resources available to ODFL learners. The components of each tier are shown in Figure 1.
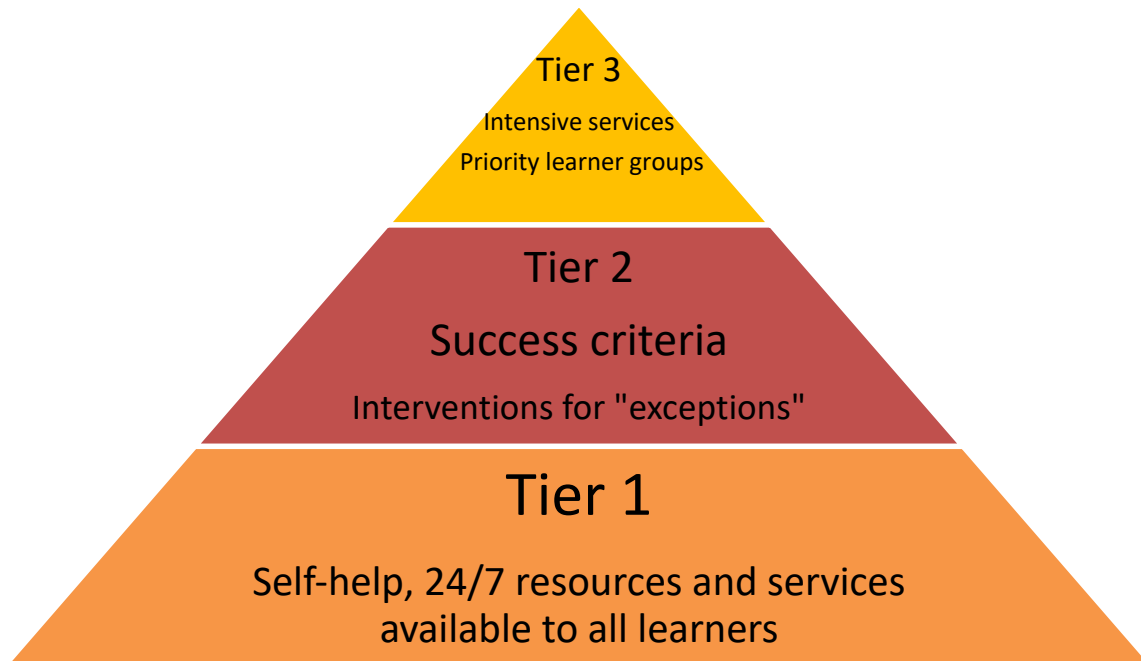
Tier 3

Intensive services

Priority learner groups

Tier 2

Success criteria

Interventions for "exceptions"

Tier 1

Self-help, 24/7 resources and services available to all learners

Figure 1 The LESS Model

Tier 1: The LESS model

Tier 1 is the foundation that provides the tools and resources that all learners can access whenever and wherever they choose, to meet their general needs and requirements. This tier includes resources such as videos that welcome learners to the Open Polytechnic, and that demonstrate how to log in and navigate through the iQualify LMS. Other tools include study skills resources, a time calculator, and essay and assessment writing guides. Tier 1 includes a Wellbeing Hub, which is a curated collection of online resources and services that support health and wellbeing and direct learners to external services, including free online counselling. This tier also provides access to ICT support and information guides. It has direct links to the IT service desk, and access to the Library and Learning Centre, library materials and additional resources, assistive technologies, and assignment and referencing support.

Tier 2: Success criteria

Tier 2 is driven entirely by learner analytics based on in-course behaviour mapped from the known behaviour of previously successful learners and predicated by the principle of learner agency. Automated communication alerts learners to potential risks and links them to services and interventions. At Tier 2, a team of mentors responds to exception learners who choose to engage with the additional services and advice offered. Risk alerts and interventions from mentors increase as "exception" flags increase at potential points of attrition along the learner journey from the time of enrolment and gaining access to the course, through to course completion.

Tier 2 success criteria trigger automated responses and link to mentor services.

- SC1: Learner is new to iQualify (has not studied by distance before)
- SC2: Learner has not logged on to course at Day 15
- SC3: Learner has not logged on, or has low engagement at Day 22
- SC5: Assessment alerts (an assessment is due, due date is missed, or resubmission opportunity is not taken up)
- SC6: Final assessment alert (one assessment in the course has not been submitted, or the opportunity to resubmit has not been taken up by the course end date).

Note: SC0 and SC4 are detailed under Tier 3—the number sequencing reflects the order in which the success criteria were developed.)

Tier 3: Intensive priority services

Tier 3 is a blend of analytics and human responsiveness. It includes two further success criteria that respond to higher need levels of intervention. This tier provides additional services for those who have traditionally been disadvantaged in education (e.g., Māori, Pasifika, and disabled learners). Equity of opportunity underpins SC0, which sends a personalised and culturally responsive communication to priority learners when their enrolment is confirmed. This introduces the specific teams and services that are provided for priority learner groups, thus enabling direct and early access to these resources. SC0 communications, again derived from the concept and values of whakawhanaungatanga and manaakitanga, provide warmth, welcome, and lasting cultural connection.

Learner analytics drive SC4 to flag learners when in-course behaviour, coupled with priority status, indicates additional long-term mentoring engagement and guidance is likely to be beneficial. This third tier of the Learner Engagement and Success Services model enables specific and intentional targeting of the complex social and educational factors that influence learner participation and success, allowing differentiated resources and services to be accessed by the priority learners who most benefit from them. Informed by analytics and driven by the value of equity, learners with priority status have access to the highest levels of intervention in the tiered model of intentional, personalised, culturally responsive, and positive intervention.

Measuring impact and success

The object of the model described in this paper is to gently influence learners towards behaviour that is likely to lead to successful outcomes, to bridge gaps in knowledge and understanding of the expectations and challenges of distance learning, and provide additional services and resources as needed. Throughout the discovery, design, and delivery phases, our impact and success measures became more sophisticated as we consistently quantified the positive changes in behaviour. Early measures captured a baseline from data preceding the implementation of individual success criteria. For example, the SC2 baseline captured the percentage of learners with no learning interactions (they had not accessed the course materials) by Day 15 (see Fig. 2, far left) of the course opening. The impact of the intervention on those learners was measured by comparing the baseline to the status at fixed points in time (Fig. 2 centre and right), after the intervention.
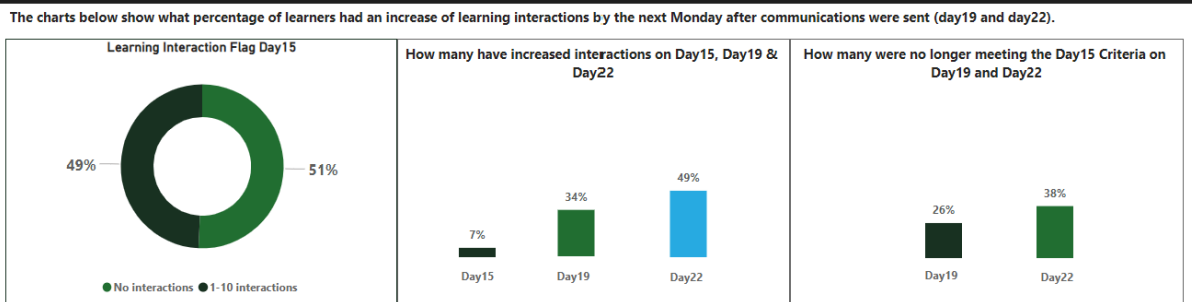
The charts below show what percentage of learners had an increase of learning interactions by the next Monday after communications were sent (day19 and day22).

Figure 2 Snapshot SC2 Impact report

Further purpose-built PowerBI reports (Fig. 3) tracked the impact over time and enabled us to drill into granular levels of data including specific learner groups, courses, programmes, and assessments. Reports tracked daily changes in learners who were flagged at each success criterion, and evidenced the impact of the specific intervention. For example, Fig. 3 shows the consistent decline, compared with the baseline, in the percentage of learners who had not accessed, and/or had very low learning interactions, at Day 15 through to Day 43 of the course.
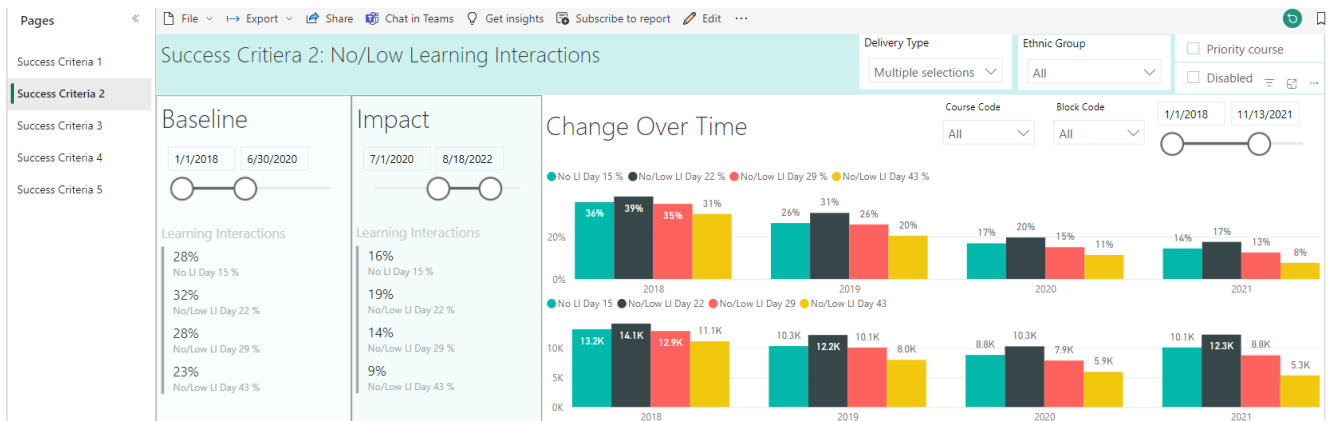

Figure 3 Success criteria data over time

While success criteria reports track the individual interventions along the learner journey, evidence for the total effectiveness of the three-tiered model is found in the Institutes of Technology and Polytechnics (ITP) sector Educational Performance Indicator (EPI) data. This official reporting data has demonstrated improved engagement and success of all learners, with consistent gains for priority learner groups across the discovery, design, and delivery period of 2017–2022. Gains in course completions occurred at a time when course completions across the ITP sector were static and declining. As a result, our course completions are now equivalent to those of other providers delivering in face-to-face learning environments.
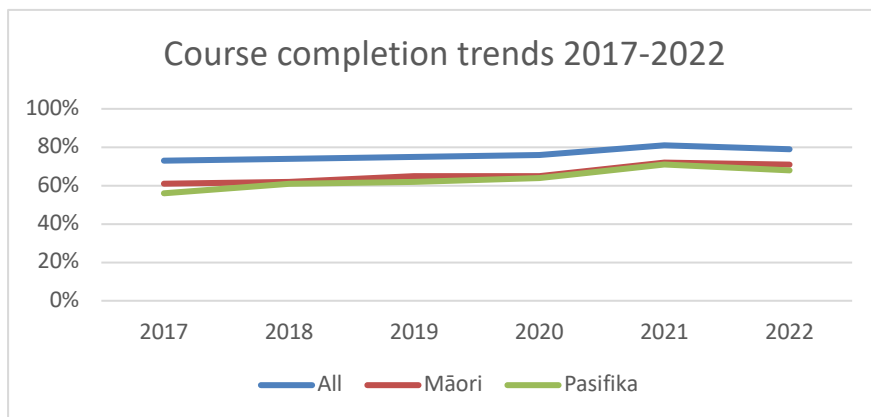
Figure 4 Course completion trends

Implications

Important lessons were learned in all phases of this project. In discovery, setting professional standards for key learner-facing staff (academics and mentors) established and communicated the organisational responsibility for learner engagement and success. The articulation of these standards encompassed and made visible the values of equity and agency that underpin the model. These values became the foundation for the process and communications associated with each success criterion. Less positively, discovery momentum was affected by choosing a commercially available communications platform too quickly. Almost indiscernibly, this led decision-making towards the capability of the tool, and away from our own aims and goals. Reversing from this position was costly and time-consuming.

In the design phase, the introduction of previously successful learner data (which was specific to each programme of learning) provided a clear map for key touchpoints along the learner journey. These touchpoints became success criteria. Maintaining focus on the key values of equity and agency both challenged and empowered the design. We cautiously navigated possible tensions in combining successful learner data with some static demographic entry data to bring enhanced services and attention to priority learner groups: Māori, Pasifika, and disabled learners. This resulted in specifically targeted success criteria being added in Tier 3.

Over a year or more, the design and delivery phases overlapped. We built and introduced more sophisticated automation, refined and culturally aligned communication, and evaluated and revised impact reports. In the delivery phase, we made a learner-facing tool available to learners that allowed them to see their own progress data in relation to that of previous successful learners. In this phase, we were never satisfied. This led to progressive improvements in all aspects of the model but also to a state of constant change without a clearly defined endpoint. This was difficult to sustain while working in a turbulent external environment that was already rocked by the extreme pressures of COVID-19. In retrospect, knowing when to stop, watch, and wait is an important aspect of any project.

Conclusion

The discovery, design, and delivery of the LESS model is a response to the Open Polytechnic's organisational commitment to provide a conducive environment in which to learn and succeed. Drawing from Tinto's (1993) well-established Theory of Retention, and Simpson's (2013) Retention Formula, LESS is our response to learners' *expectations, support, and involvement*. Moving beyond these models, the tiered model intentionally refers not to "support" but to "engagement and success". Learner Engagement and Success Services provides resources and

tools that enable learners to resolve their own difficulties and, in so doing, build efficacy and independence. If this is not possible, or more is needed, the tiered model responds to differentiated levels of need with differentiated levels of service and intervention.

Although, as Panda (2023, p. 856) describes, this provision is now "operationalised, equitably distributed and continuously grappled with", not all is perfect in this model or in the wider environment. The persistent tension between the data-determined identification of exceptions and the principle of agency is unlikely to be fully resolved. The Goldilocks sweet spot of "not too much and not too little" communication or intervention is always shifting. The choppy waters of change in tertiary education sweep across the challenges and gains of past years to demand and divert attention and resources. The exponential evolutionary development of technologies and, in particular, the much-lauded expectations of AI potentially offer up a baby to be thrown out with the bathwater.

Within, because of, and despite these challenges and contexts, the LESS model, underpinned by principles of agency and equity, deliberately moves beyond traditional notions of learning support to those of engagement and success, achieved through empowering learning and enhancing mana. This model actively rejects analytics solely driven by the static characteristics of a learner to identify and intervene predominantly on behaviour. It assumes that an exception is a temporary problem that can be resolved through timely intervention. The LESS model responds to general and specific needs of adult distance learners in ways that we believe are scalable and measurable. The model leverages technological and human capabilities to provide universal and individually targeted resources and services. It creates a holistic institutional responsibility to positively influence adult distance learners' success—a practical manifestation of the adage "LESS is more". We hope our lessons support others involved in similar projects.

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Biographical notes

Dr Lynnette (Lynne) Brice
lynnette.brice@openpolytechnic.ac.nz

Lynette is currently Academic Staff Member, Degree Leader in Initial Teacher Education at the Open Polytechnic | Te Pūkenga. Previously, she held the roles of Manager, Learner Engagement and Success Services, Professional Practice Leader, and Head of School Foundation and Bridging at Open Polytechnic after an earlier career in secondary education. Lynnette is a Fulbright alumnus, having received the NZ Fulbright Distinguished Teaching Award to study in the USA in 2015. Lynne's doctoral research broke new ground in understanding the impact of emotions in second-chance teaching and learning, which she explored through learner and tutor experiences in teen parent education, alternative education, and foundation education in Corrections facilities in Aotearoa.

Dr Alison Harrison
alison.harrison@openpolytechnic.ac.nz

As Executive Director Strategy at Open Polytechnic | Te Pūkenga, Alison supports strategic and business planning processes, and leads the design and development of the data, learning analytics, and reporting functions in the organisation. All of these aim to drive learner and educational success. Before taking on her role at Open Polytechnic, Alison worked for 10 years as a management consultant in Europe, leading change management and strategic and business improvement projects across a wide range of public and private sector organisations. She has 30 years' experience in tertiary education institutions, including roles in applied research and the commercialisation of research technologies in a university spin-off company. She is the author of 11 books and over 60 academic publications.

Alison holds a PhD in chemical engineering from the University of Natal in South Africa and an MBA (with distinction) from Oxford University in the United Kingdom.

Alan Cadwallader
alan.cadwallader@openpolytechnic.ac.nz

Alan Cadwallader has been Executive Director, Learning Delivery for Open Polytechnic New Zealand since 2015. In more than 2 decades, Alan's career in vocational education and training spans a number of New Zealand institutes of technology and polytechnics in teaching roles and as an administrator.

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