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General and unique predictors of student success in online courses: A systematic review and focus group

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General and unique predictors of student success in online courses: A systematic review and focus group

Abstract

Despite the increase in the availability and popularity of online educational programs, there is a lack of understanding of non-academic as well as academic predictors of online student success. In this study, we have investigated predictors of tertiary level student success via the Psychology discipline, a popular online subject. A systematic literature review, followed by focus groups with students and instructors from online Psychology courses, revealed several important findings including a profile of general predictors of online student success and the existence of discipline-specific online student success predictors which can be extended to a variety of health care courses. Understanding the indicators of effective online education will allow course designers and instructors to develop strategies specific to the online mode and particular disciplines, enabling implementation of evidence-based education practices, which can support academic and non-academic student success in a range of online courses.

Practitioner Notes

1. Understanding the indicators of effective online education will assist in the success of online students
2. Student success strategies must be developed specific to the online mode and particular discipline taught
3. For students studying psychology (or other health care courses) online, there is a need for virtual or online self-care resources and activities to enhance wellbeing and foster student success, particularly for students who may be triggered by the sensitive nature of the content taught

Keywords

Online education, Distance education, Student success, Online Courses

Authors

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Introduction

Online education

Advances in technology have substantially influenced learning delivery in higher education. Online learning has fast become an alternative form of education, particularly appealing to older, employed and place-bound individuals, given the *anywhere* and *anytime* learning environment (Brinkley-Etzkorn, 2018). In addition, the recent impacts of the COVID-19 pandemic have thrusted universities into the online space. Whether by choice or not, there has been a rapid increase in available online options within the tertiary sector, with many more higher education institutions offering online alternatives (Ali, 2020; David, 2020).

As more tertiary courses transition to an online mode of delivery, there is a need to strengthen the extent to which these courses meet the broad student success needs of their students, to enhance course completion and employability of graduates. Understanding key practices of effective online education will allow online course leaders and designers to develop and apply evidence-based teaching and learning practices specific to the students studying in the online mode, ultimately fostering broad online student success.

Student success

The definition of student success is varied across the literature and changes according to whom you are asking, the student, the institution or external agencies (Alyahyan & Dustegor, 2020). From the perspective of the student, student success may be interpreted as individual achievement levels (i.e., academic grades) (Kinzie & Kuh, 2017), satisfaction with the course, perceived experience and perceived value of the education they have received (Al-Samarraie et al., 2018). This differs from the perspective of an institution which can define a student's success as, amongst other things, the completion of a degree, obtaining content knowledge and proficiencies and overall engagement with the course content, assessments and activities (Kinzie & Kuh, 2017). External agencies may define student success as having access to affordable tertiary education, good employment outcomes following the degree and graduate salary. In an effort to not narrow the scope of the studies included in this review, a multidimensional view of student success has been incorporated in this study overall. Using this multidimensional view of student success is in line with the work conducted by York et al. (2015) who set out to define and measure academic success. Based on their findings, they define academic success as inclusive of academic achievement, attainment of learning

objectives, acquisition of desired skills and competencies, satisfaction, persistence, and post-college performance.

Discipline specific predictors of student success in online education

Although studies and reviews exist that aim to examine the predictors of student success in an online mode, they often narrowly focus on specific predictors, namely, student and instructor interaction, self-regulated learning, and social presence (Bekele, 2010; Broadbent, 2001; Broadbent & Poon, 2015; Eom & Laouar, 2017; Kauffman, 2015; Richardson & Swan, 2003; Song et al., 2004). Limited studies consider the possible unique discipline specific predictors of student success.

A large study by Hornik et al. (2008) compared outcomes for 167 online courses, finding that student's grades were lower and had higher attrition rates for subjects such as chemistry, physics, mathematics, and engineering compared with sociology, political science, history, and education. The study concluded that technology-mediated learning can be used more effectively for some courses than others. Consequently, there has been some research and critical analysis of predictors relating to student success across a range of discipline-specific online courses (Blumberg 2009; Guidry, 2013; Khareedi 2018; Yukselturk & Bulut, 2007). In sum, the literature has indicated that discipline-specific factors exist and are relevant and powerful to understanding student success in online education and are thus important to consider alongside more well-known generic online learning factors, to assist Faculties or Schools within Faculties in designing quality online courses (Kauffman, 2015).

Predictors of student success in online psychology education

There has been very little research in identifying the predictors of student success specific to psychology tertiary students who study in an online mode. The psychology discipline is a valuable candidate for review as it is a very popular online as well as non-online course, and it differs vastly from other disciplines. The study of psychology often includes large class sizes, due to its popularity amongst students. According to the Universities and Colleges Admissions Service (UCAS, 2018), in the UK, psychology studies, both on campus and online, have seen a progressive rise in choice and popularity among students. In 2014, more than 100,000 students registered for a UK psychology degree, and demand has been on a steady rise ever since. As in the UK, in Australia psychology is one of the most popular subject choices for higher education students and there is strong anecdotal evidence that the number of students studying psychology online has been growing steadily (Australian Psychological Society, 2020). Moreover, the study of psychology (specifically at the post-graduate level) often

requires one-to-one learning needs. That is, due to the client-patient content that needs to be covered in the course, there needs to be opportunities to foster skills required for psychologists-in-training (e.g., active listening), which is often done via role playing in traditional on campus settings.

Designing and implementing an online psychology course that successfully considers the aforementioned characteristics is inherently challenging. Specifically, as the size of an online class increases, the need for clear online course design becomes increasingly apparent (Trammell & LaForge, 2017). In addition, as role-playing is a fundamental psychology teaching method, identifying online platforms that can allow for this kind of activity and interaction with peers and instructors can be challenging and often costly. The predictors of student's success may differ in an online psychology course compared to its equivalent on-campus course and compared to other online courses. Thus, further investigation into the predictors for optimal student outcomes in online psychology education is particularly important for ensuring effective education, enhancing the student experience, producing optimal graduates, and subsequently enhancing the industry with positive client outcomes.

The current study

The focus of this study is to identify the key predictors of student success in online education within the discipline of psychology, using two methodological approaches. The first approach included a systematic literature review, which focussed on quantitative and qualitative data from existing studies investigating the key predictors of student success in online tertiary study within the psychology discipline. The second approach included focus groups with instructors, instructional designers and students from particular online tertiary psychology courses, (i.e., Monash University's Graduate Diploma in Psychology (GDP) and Graduate Diploma of Psychology Advanced (GDPA). The data obtained from focus groups was used to classify the findings from the literature review (i.e., the key predictors of success) and identified any gaps in the research regarding potential indicators of effective online learning within psychology courses. This research aims to review the existing literature to identify known key predictors of success among students studying psychology in higher education, and to explore online psychology students' and instructors' perceptions of online student success predictors.

Method

Systematic literature review

Inclusion and exclusion criteria

To examine the predictors of student success in psychology online higher education, this review adopted the following research paper inclusion criteria: i) qualitative and quantitative peer-reviewed, empirical studies or dissertations; ii) English language; iii) original data reported, and published the last 12 years; iv) samples including tertiary students aged 18 or above, undertaking an online psychology course or unit, including college, undergraduate and post-graduate students; v) sample participants must have undertaken their psychology course or unit fully online; vi) student outcome measures such as student success, student learning, student satisfaction, or student perceptions of those outcomes. Exclusion criteria included: i) any course face-to-face learning; ii) if the psychology unit was a Massive Open Online Course (MOOC), as this was outside the scope of the review; iii) if the study only reported instructor or instructor outcomes or experiences; iv) studies investigating online learning strategies, systems, or tools that are web-based, but are not within a fully online course or unit.

Literature search strategy

The systematic literature review was performed in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement guidelines (Liberati et al., 2009). Studies were identified by searching the prominent electronic databases in the field of education and psychology, namely: ERIC, SCOPUS, EBSCOhost, Taylor and Francis Online, Wiley Online Library, PsychINFO, Ovid, PubMed, Embase, The Learning Technology Library, Web of Science, ProQuest, Emerald, Academic One File, SAGE, Science Direct (Elsevier), and Informit. NDLTD was also searched for relevant theses. The database search was conducted in August 2021. Search terms (see Table 1) were applied for titles, abstracts, or the full text, and limits were applied for the selected publishing period.

Study selection

After the initial search, Reviewers 1 and 2 removed duplicate studies and screened the titles and abstracts of each paper independently to remove non-relevant studies. Any discrepancies were discussed among the reviewers until they reached consensus. After identifying relevant papers, the reviewers screened the full-text of the papers and excluded those that did not meet the inclusion criteria. Finally, a manual search for additional papers was conducted by

examining the reference lists of papers deemed relevant after full-text review.

Table 1

Search terms

Place in article	Search terms
title or abstract	"student outcomes" OR "student success" OR "student learning" OR "student satisfaction" OR "effective learning"
title or abstract	"Online learning" OR "online education" OR "e-learning" OR "web-based learning" OR "virtual learning" OR "hybrid learning" OR "blended learning" OR "computer based learning" OR "computer assisted learning" OR "mediated learning" OR "distributed learning" OR "technology-mediated"
title or abstract	"tertiary" OR "higher education" OR "university" OR "college"
full-text	"indicator" OR "predictor" OR "determinant" OR "component"
full-text	"psychology course" OR "psychology degree" OR "psychology diploma" OR "psychology education" OR "psychology baccalaureate" OR "psychology program" OR "psychology unit" OR "psychology module" OR "psychology students".

Data extraction and synthesis

For each of the selected papers, different aspects of the study were extracted and summarised by Reviewer 1, using a data extraction template developed by the investigators (see Table 2). For each study, the aim, setting, course, participants, study design, and method of data analysis were recorded. Additionally, how the researchers defined student success and how it was measured was identified in each study. How the researchers defined and measured the independent or predictor variable was also recorded. Finally, the findings and conclusions in relation to the predictor and the outcome were summarised for each paper.

After extraction, Reviewers 1 and 2 independently grouped unique predictors into themes using a thematic synthesis (Braun & Clarke, 2006). The organisation of themes was based on the definitions of each predictor. The reviewers then compared their findings and discussed their rationale for each selected theme until a consensus was reached on the identified themes.

Inherently, the current study's results may be limited by the findings of those studies that are published in this field, however, this study reviewed the grey literature by considering unpublished dissertations for inclusion, potentially reducing this bias (Perestelo-Pérez, 2013).

Additionally, to help overcome the bias of some studies potentially under-reporting non-significant or unexpected findings (Silagy, Middleton & Hopewell, 2002), this study used also used focus groups to cross reference the results of the review.

Focus groups

Participants

Two groups of participants took part in the study. Sample 1 comprised 12 online students; male = 2, female = 10) aged between 18 and 62 years ($\bar{x}$ = 38.12, *SD* = 14.80) from Monash University's fully online Graduate Diploma of Psychology (GDP; *n* = 6) and Graduate Diploma of Psychology Advanced (GDPA; *n* = 6). Sample 2 comprised 10 online instructors (3 male, 7 female) aged between 24 and 40 years ($\bar{x}$ = 32, *SD* = 6.32) from the GDP (*n* = 2) and GDPA (*n* = 8). The GDP is an accredited undergraduate psychology course of 1.7 years duration, designed for individuals who have already completed a higher education qualification degree. The GDPA is an accredited 4th year psychology course of 1.4 years duration, which is divided equally into both coursework and research components.

Procedures

Participants were recruited from the GDP and GDPA. GDP and GDPA instructors were recruited for participation by email and via staff meetings. GDP and GDPA students were recruited via online student group pages and via email. Four one-hour online semi-structured focus groups with online instructors and students were conducted. Focus groups were audio recorded and transcribed immediately upon collection. Participants who completed the focus group were given a $20 AUD gift voucher.

Data analysis

The focus group data was analysed using thematic analysis (Braun & Clarke, 2006). This required the transcription of interview recordings and followed coding stages. Initially, Reviewer 1 read the transcripts in order to identify potential themes. The second level of analysis involved reviewing the initial codes by Reviewer 2. Both reviewers considered particularly how to retain the diversity of the initial codes, while producing overarching elements, higher level sub-themes. The research question exploring online psychology students' and instructors' perceptions of online student success predictors, informed this process. At the third stage, analysis conducted by the first and second reviewer identified quotes that were congruent with the overarching themes. Next, the themes were reviewed prior

to defining and naming them. Finally, once themes were finalised, by the first and second reviewers, the write-up of the report began.

Results

Systematic review

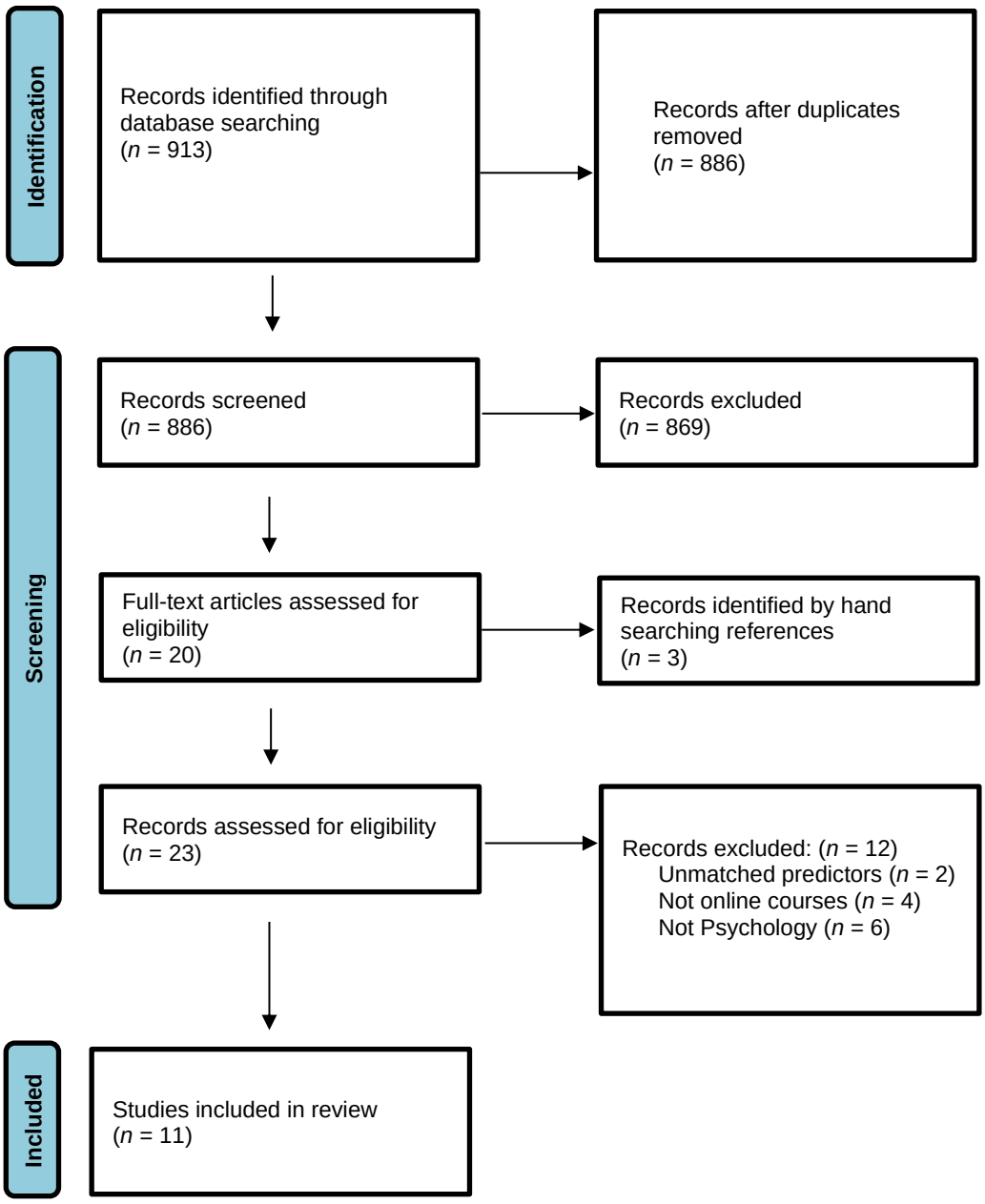

Figure 1
Flow diagram of the selection process for the systematic literature review

After removing duplicates, the search identified 886 unique articles. During the screening process, 866 articles did not meet the criteria for review and were excluded based on their titles and abstracts, meanwhile inter-rater agreement between reviewers was acceptably high (97% - 100%). The reviewers searched the reference lists of the remaining 20 papers and found three additional relevant papers, leaving a total of 23 articles for full-text review. A further 12 papers were excluded that did not meet the inclusion criteria, with an inter-rater agreement of 75%, as they either did not use a psychology unit or course (n = 4), were not fully online units or courses (n = 6) or were descriptive and did not specify any predictors of the outcome (n = 2). In total, eleven papers were included in this systematic literature review (see Figure 1).

Student outcomes

Multiple student outcomes were identified by the studies, with most papers (n = 7) looking at outcomes related to academic attainment. Academic attainment was defined in numerous ways across the studies, however most studies (n = 6) defined this as the overall course grade. These studies also tended to look at other measures of academic attainment, such as assignment grades or completion and exam scores. One study evaluated student outcomes based on the students' graduating status (i.e., graduate or non-graduate status). Many studies also investigated outcomes related to student satisfaction (n = 5). Student satisfaction was mostly defined as satisfaction with the online learning environment (e.g., Kuo, Walker, Schroder, & Belland, 2014) or with specific e-learning tools (e.g., discussion forums; Baxter & Haycock, 2014). Meanwhile, Stokes, Gillan, and Braden (2016) looked at more specific types of satisfaction such as satisfaction with learning, work satisfaction and perceived study skill improvement. Other researchers have also investigated outcomes related to either student engagement or motivation (n = 2). Specifically, Baxter and Haycock (2014) examined engagement with peers and instructors in an online forum environment, and Stokes et al. (2016) used motivation level as one of their many outcome variables.

Predictors of student success

Across the studies, 29 unique predictors for student success were identified. Given the heterogeneity of the methods and predictors used across these studies, as well as the inclusion of qualitative research methods, it was not tenable to conduct a meta-analysis of these studies. For the qualitative studies, student success predictors that the authors identified as most prominent were included. The 32 predictors were grouped into eight sub categories, namely; (a) engagement, (b) student characteristics, (c) attitude towards learning and technology, (d)

academic history, (e) psychological attributes, (f) course structure, (g) instructional design, (h) social presence. These subcategories were then grouped within two broader categories; student predictors and course predictors (see Table 2).

Table 2

Summary of predictors identified within the literature

Predictor type	Predictor	Example
Student	Engagement	Learner-content interaction (Kuo et al., 2014)
		Behavioural engagement with educational activities (Jennings, 2013)
		Number of assignments completed (Woodhead et al., 2017)
	Student characteristics	Gender (Jennings, 2013; Tudor, 2018)
		Age (Jennings, 2013; Tudor, 2018)
		Race/Ethnicity (Jennings, 2013)
		First generation university student (Jennings, 2013)
		First online course taken (Jennings, 2013)
		Experience of online chat rooms (Baxter & Haycock, 2014)
		Self-regulated learning (Kuo et al., 2014)
		Internet self-efficacy (Kuo et al., 2014)
		Socio-economic status (Tudor, 2018)
		High school GPA and ACT composite scores (Tudor, 2018)
		Technologically savvy (Goike, 2020)
	Attitude towards learning and technology	Ease of use of course technology (Stokes et al., 2016)
		Perceived usefulness of course materials (Stokes et al., 2016)
	Academic and work history	Graduate readiness (Overholt, 2016)
		Application essay score (Overholt, 2016)
		Relevant work experience (Overholt, 2016)
		Number of units completed (Jennings, 2013)
Course	Course structure	Course duration (Shaw et al., 2013)
		Course level (Kuo et al., 2014)
		Online group work (Loh & Smyth, 2010)
	Instructional design	Readiness activities before the start of the course (Woodhead et al., 2017)
		Integration of learning tools in LMS (Woodhead et al., 2017)
		Forum management and structure (Baxter & Haycock, 2014)
	Social presence	Perception of faculty approachability (Jennings, 2013)
		Learner-instructor (Kuo et al., 2014; Baxter & Haycock, 2014
		Learner-learner interactions (Kuo et al., 2014; Baxter & Haycock, 2014)
		Instructor presence (Jennings, 2013)
		Social presence (Baxter & Haycock, 2014; Kushnir & Berry, 2014)
		Social exchange (Loh & Smyth, 2010)

Student predictors

Student predictors were the most frequently mentioned variable, with 20 out of the 32 predictors falling under this category. This category was further broken into four subcategories, including engagement (3 predictors), student characteristics (10 predictors), attitude towards learning and technology (2 predictors), and academic and work history (4 predictors).

Engagement is defined as the student's energy and time spent interacting with course content and activities outside the online classroom (Kuh, 2003). Engagement showed significant positive correlations with both student satisfaction and academic attainment. Behavioural engagement with educational activities related to course material (including assignments) and high engagement scores using the National Survey of Student Engagement (NSSE) survey predicted academic attainment (Jennings, 2013; Woodhead et al., 2017).

Student characteristics are defined as the demographics of the students and their experience with the online mode. Age was shown to significantly predict academic attainment, such that as age increased so did the number of total points earned in the course (Jennings, 2013). In this study, gender was also shown to be a significant predictor of academic attainment. A qualitative study by Baxter and Haycock (2014) found that past experience of online chatrooms and other online media was strongly influential in students' engagement in online forums. Moreover, Goike (2020) found an individual's technical savviness predicted the level of student's engagement in the course.

Attitude towards learning and technology includes predictors of the technology acceptance model (TAM), which are attitudinal predictors that are believed to influence a students' acceptance and use of new technology (Stokes et al., 2016). Additionally, a predictor relating to one's attitude towards learning in general was also included in this subcategory. Perceived usefulness of course materials and perceived ease of use were significant predictors of multiple types of satisfaction, including work satisfaction, learning satisfaction, perceived study skill improvement, and motivation (Stokes et al., 2016). However, neither significantly predicted any academic outcomes.

Academic and work history refers to student's previous academic performance and relevant experience with the content of the course. Findings were mixed, with the number of units completed being a significantly positive predictor for academic attainment (Jennings, 2013),

while relevant workplace experience did not predict whether students successfully graduated from the course (Overholt, 2016).

Course predictors

The remaining 12 predictors were Course predictors and were divided into three subcategories, including course structure (3 predictors), instructional design (3 predictors), and social presence (6 predictors).

Course structure includes use of course duration and course level as predictors for student outcomes, and both were found to be non-significant predictors. Specifically, Shaw et al. (2013) found that there were no differences in students' final scores between otherwise identical 8-week unit and a 16-week units. Online group work has also been investigated in regard to how it relates to student satisfaction (Loh & Smyth, 2010). In their qualitative investigation into the challenges associated with online group work, Loh and Smyth (2010) found that 'perceived equity issues' (such as concerns about ideas being plagiarised) were a major challenge in group assignments.

Instructional design refers to the development of the delivery system and the structure of the content of online courses. This has been examined at a unit level and at a more specific level in the provision of online forums. A study by Woodhead et al. (2017) showed significantly higher academic attainment (pass rates) in their redesigned unit, which included a week of readiness activities before the course, and independent videos embedded into a learning management system.

Social presence was the most investigated predictor, with 4 studies investigating a total of 6 predictors, and represents the psychological distance between students and other students or instructors. Social presence as a broad concept was identified by Baxter and Haycock (2014) in their qualitative study as a predictor for student satisfaction in online forums. They found that a failure to achieve social online presence was problematic for the individual and also for those attempting to engage with that person. Those students reported feelings of isolation and a lack of familiarity with other users and were in turn reluctant to post.

Focus groups

Student outcomes

Student success was most defined by both focus groups as obtaining good academic grades. Both groups also mentioned that success could be related to being work ready. Online

instructors mentioned that student success is developing research skills and psychology knowledge more broadly. Some students explained how success can be defined as finding meaning and enjoyment in the learning content.

Table 3

Summary of predictors identified within the focus group with online students and instructors

Type	Predictor	Definition and direct quotes from focus groups
Student	Computer and technological skills	The basic knowledge of computer, internet and navigation skills, such as how to access online learning materials, how to communicate effectively with other students and staff using email and discussion boards and knowing which software to use for producing assignments. "Technological literacy is important, you have to feel at least confident to be able to use the software and engage in the online environment (...)." [Online student, female]
	Independence, resourcefulness/ active learning	The ability of one to learn independently and to rely on one's own cognitive capabilities. Online students and instructors believe that online studies require one to be an active learner, self-starter who is not shy or afraid to seek help and asks questions via email and discussion boards.
	Motivation	Being able to start and to work on tasks on your own, without someone keeping you focused, and being disciplined in order to follow the class schedule and meet deadlines. Both online students and instructors believed this to be an important predictor of student success in an online mode.
	Commitment & discipline	
	Communication skills	Having effective communication skills and strategies (specifically in an online mode) to be sure your intentions are obvious, and your thoughts are coming across clearly to both students and staff.
	Time management & organisational skills	Setting aside sufficient time for study and balancing online study with other commitments. Planning to spend at least as much time working on the assignments and studying as you would with a traditional course.
	Learner content resilience and self-care	The capacity to recover quickly and ability to seek help and use resources to aid in disappointments, adversities and difficulties during the online learning process. "I think that the content is not only challenging in its complexities, but also emotionally challenging, and so just understanding what burnout is, what is self-care, and how to really demonstrate that in your life while you are studying [is important]." [Online student, female] "There are more chances in psychology to personally connect with the content which may be positive or negative or neutral (…) compared to say a statistics course online which might not have as much personal connection." [Online student, female]
	Academic history	Any experience as a student in a tertiary course, online or not. Online instructors particularly believed that students who have done well in previous courses are likely to hold stronger graduate attributes and skills from the outset, thus able to adapt to the online course more quickly, compared to those who do not have this experience. "It reinforces this confidence or belief that they can do it (…)." [Online instructor, female]
	Adaptive to non-conventional learning styles	The ability to adapt quickly to learning online as opposed to conventional brick and mortar classrooms and textbooks. Online instructors perceived this as an important predictor of success especially for more mature aged students as they may have had less exposed to this kind of learning environment.

Course	Varying learning content/formats	Offering various types of learning content to cater to different students learning styles. "So after I was tired reading the 10 page journal, there was a video, so there were different methods that gave me respite almost from so much text" [Online student, female]
	Includes relevant academic and technical support	Includes academic support, technical support and administrative support to assist students in a timely manner. "Confident that there is support out there if you need it, if you run into trouble, that there's someone who can talk plain language and can talk you through the problems that you're having. So the perception that there's support there really adds to your confidence." [Online student, female]
	Opportunity for online social interaction	Promotes and caters for student-student interaction. "But I feel like being social is really important for psych students in particular compared to students doing other courses just because the course is based a lot on social perspectives, so I think that's a really important predictor." [Online instructor, male]
	Includes self-care resources	Resources and activities to help students in times of stress, difficulties and disappointments. "Self-care on every last page. There was a mediation package, and that last page was actually embedded in the exams - in the quizzes, so it wasn't just a throw-off page, it was giving you respite, but also a testament in a sense (…)." [Online student, female]
	Promotes flexibility	Flexible learning options. "(…) there's flexibility allowing you to do things in the sequence that suits your learning style." [Online student, female]
	Clearly set tasks and course structure	Clearly articulated unit objectives, assignment deadlines and unit content. "(…) very clear cut tasks to achieve is what I would say, you go in and you know what to expect, so that you can manage your own time around that." [Online student, female]
	Opportunities to contact other students via various means	Communications via email, phone, video conferencing. "Having the capacity to talk on the phone as emails may not suffice [for some students]." [Online instructor, female]
	Learning content	The nature of the learning content "(…) making the content more concise and accessible- because we're having to teach content very quickly." [Online instructor, female]
	Time frame of course	The length of time students have to complete each unit and the course. "(…) the 6 weeks really work for some students and it's great…and they thrive and they're really organised and they get through it all, or something happens in week 2 or 3 and they fall behind and they kind of fall over so it can kind of go either way." [Online instructor, female]
	Availability of orientation sites	The resources students have prior to commencement of their course. "(…) we get them [students] into the orientation site and that orientation site has instructions on how to navigate Moodle (…)." [Online instructor, female]
	Instructor capabilities in an online mode	Technological competencies and confidence of the online instructor. "Yeah so just having good instructors and obviously in terms of teaching academically but also competence in being able to guide students through the course as well. Obviously, they're not the tech people, but at an appropriate level they need to be able to guide students through the course too." [Online instructor, female]
	Constant ongoing improvement	The amount of effort that is put forward in gaining student and staff feedback to improve the course "So, if students feel like there are things that aren't working, they can see that they're actually making a difference in improving their own course." [Online instructor, female]

Predictors of student success

Across studies involving focus groups with online students, 13 predictors for student success were identified. Across studies involving focus groups with online instructors, 20 predictors for student success were identified. The 13 predictors identified for students and 20 predictors identified for online instructors were grouped into two broad categories; student predictors and course predictors (see Table 3).

Discussion

Principal findings

This study had two main outcomes, (1) the identification of a profile of potential general predictors of student success in online courses and (2) the identification of predictors of online student success that are specific to the discipline of psychology and possibly to other health related disciplines. Both outcomes will be addressed in turn below.

First, across the focus groups and the literature review there was a consensus that knowledge, experience with and attitudes towards internet and technology were important for online students' success. Additionally, the opportunity for student-student interactions as well as student-instructor interactions, academic support and the availability of orientation activities prior to the course or unit start were all identified as significant predictors of online students' success. The findings of this study are in line with research that has examined the predictors of online student success, not specific to the study of Psychology (Kaufman, 2015). These studies report the importance of adequate instructional methods, support, course structure and design in facilitating student performance and satisfaction (Darabi et al., 2006; Dennis et al., 2004; Goodyear et al., 2001; Kaufman, 2015). The profile of general predictors found in this study and in past studies can be used to assist online student's success within and outside the disciplines of psychology.

Second, there were predictors of student success identified in the focus groups that were unique to the study of psychology in an online mode. Students recognised the sensitive nature of the content taught in psychology, in addition to the perceived isolating nature of studying online and the potential combined impact of this on student's psychological wellbeing. Students acknowledged that the content taught in psychology is the same for on-campus and online students, however, in traditional physical campuses students have face-to-face support from other peers, staff and readily available walk-in on campus health and wellbeing services. Without the 'face-to-face' support, online students may encounter the perceived isolating

nature of studying virtually, and when triggered by the learning content offered in the course, they may be faced with the unique challenge and perceptions of addressing emotional difficulties virtually alone. Consequently, the need for virtual or online self-care resources and activities were highlighted by online students as being not only valuable in online psychology courses but necessary to foster student success.

The need for readily available virtual or online self-care resources and activities for online students' success can be extended to other health related disciplines given that psychology is not the only tertiary discipline that contains sensitive and often controversial learning content. For instance, content such as domestic violence, sexual assault, suicide and trauma are prevalent in the curriculum of disciplines such as social work, nursing, and medicine (Beverley et al., 2018). These courses all offer online tertiary course alternatives, even more so now, as a result of the contribution of the effects of COVID-19 to the proliferation of online learning. Moreover, for students studying online in other disciplines that do not noticeably present sensitive or controversial learning content, it may not be obvious or anticipated what students will interpret as sensitive content. Having readily available student virtual or online self-care resources and activities may therefore generally be useful for students to foster their wellbeing and other success.

Self-care resources and activities are known to cultivate resilience among students studying online (Lin et al., 2020; McGuiness, 2020). It is important for our students to feel that it is acceptable to feel that some of the content learnt is difficult but to still be engaged in the content. It is important for our students to recognise when they have learnt something particularly triggering and difficult, or when they feel burnt out, and know how to care for themselves, including by knowing when and how to get professional help. Equipping students with a suite of valuable and easily accessible online resources, information, guidance and tools essentially mimics the readily available walk-in on-campus health and wellbeing services available to on-campus students.

Moreover, it is already known that University students in particular are identified as a high-risk group presenting mental health struggles compared to the general population across Australia, the United Kingdom and the United States (Holm-Hadulla & Koutsoukou-Argyraki, 2015). Additionally, during recent times tertiary students across the globe are experiencing increased levels of stress due to the COVID-19 pandemic. Recent research has reported students feeling uncertain about economic stressors, academic delays, and effects of COVID-19 on daily life (Browning et al., 2021). As a result of this, many Universities have already implemented mental health and wellbeing strategies for the general student population which

are appropriate for online students too. A recent study conducted by Baik et al. (2019) reports diverse recommendations from students themselves about what can be done to improve student mental wellbeing. Although the study was aimed at campus-based students, it reported on several student themes and recommendations including the need for student services and support, that can be applied to online programs. Some of the self-care resources and activities mentioned as being useful to students include counselling services, student advising services and mental health and wellbeing practices, such as stress management strategies and mindfulness workshops. The study noted that on top of providing these services for students, most important was the need to promote wellbeing and to publicise support services and encourage students to use them, an important point that was also addressed by online students in the focus groups in this study.

The need for readily available virtual or online self-care resources and activities has never been more vital for the success of tertiary students than it is for students studying online in today's climate. Research also shows that there are significant differences between discipline cohorts for improving student wellbeing (Baik et al., 2019). Thus, it is clear that University led initiatives for better supporting student wellbeing are appropriate, however, they are best developed and implemented at the program/school level, otherwise student services and support may not address the specific course level stressors and factors that students perceive as impacting their wellbeing (Baik et al., 2019).

Limitations

This study was not without limitations. First, the literature review excluded studies that reported only instructor or instructor outcomes or experiences, to understand predictors of student success directly from student's experiences. Perhaps, the inclusion of instructor or instructor outcomes or experiences may have helped validate the findings and/or identify other predictors of student success. Second, while this review focussed on identifying the predictors of student success, it should be noted that success is a broad and multi-dimensional term and its meaning could be varied including between different students and different student settings. Therefore, it may be the case that certain potential success predictors may explain aspects of student success, rather than student success overall. Last, the focus group study utilised a sample size of 11 online students (two focus groups were held with five and six participants across two groups). The size of the sample may be considered too small to validate and add to the findings of the literature review. Guest et al. (2016) however suggest that a sample size of two to three focus groups will likely capture at least 80 percent of themes on a topic, including those most broadly shared in a study with a relatively homogeneous population using a semi-

structured guide, and 90 percent is discoverable with three to six focus groups. Future research in the area may include a broader sample of participants to enhance the study findings.

Conclusion and future research

The results of this study highlighted that for psychology students studying online there is a need for virtual or online self-care resources and activities to enhance wellbeing and foster student success, particularly for students who may be triggered by the sensitive nature of the content taught. Although University led initiatives for better supporting student wellbeing exist and may be appropriate for online students, Baik et al. (2019) have acknowledged that such self-care resources are best developed and implemented at the program/school level, otherwise we run the risk of not addressing the specific course level stressors and factors that students perceive as impacting their wellbeing. Key follow-ups to the research presented here include curating readily available online friendly self-care resources and activities which students can use and turn to when they have learnt something particularly triggering and difficult, or when they feel burnt out.

Overall, this study has demonstrated that a ‘one size fits all’ approach to student success should not be taken when designing and implementing online courses. From this research, there are common predictors of student success that apply to various disciplines, however for psychology and other health care related courses there may be additional predictors. A better understanding of these additional predictors will allow course designers and instructors to develop teaching and support strategies specific to the online mode and to the discipline being taught in it, enabling the implementation of increasingly evidence-based practices in various online courses that will foster total online student success.

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