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The power of writing about procrastination: journaling as a tool for change

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ABSTRACT

Procrastination is a common source of academic struggles among college students. Prior research suggests that procrastination tendencies are amenable to change, but the mechanisms behind successful interventions are not fully understood. In a small-scale intervention study, college students who self-identified as procrastinators maintained biweekly journals and participated in a one-on-one, semi-structured interview about their experiences. The journaling tool built upon principles of self-monitoring and reflective writing to bring greater awareness to students' behaviours. With the raw journal entries and verbatim interview transcripts as data sources, inductive thematic analysis was used to understand how the journaling experience influenced students' procrastination tendencies. Findings indicated that journaling spurred four pivotal processes: understanding procrastination, making changes in the moment, motivating action, and finding direction for change. The findings shed light on student-directed change and can inform practices aimed at reducing college students' procrastination.

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Joan Didion once stated to a group of fellow writers and intellectuals that 'I write entirely to find out what I am thinking of, what I want, and what it means' (Mehren 1985, 51). Writing has the power to clarify and disentangle thinking, to bring conscious focus and a more objective perspective to experiences (Boud 2001). Self-monitoring may add valuable structure to certain types of writing, as self-monitoring often brings about transformational self-insight through greater awareness of behaviours (Zimmerman 2000). Because both writing and self-monitoring can illuminate goals, tendencies, and opportunities for change, it seems likely they can function together as a powerful tool for self-improvement. Procrastination is an ideal target for self-improvement, as college students' tendency to procrastinate often leads to academic underperformance and distress (Matthews, Zeidner, and Roberts 2006). The present study thus considers the following question: Can journaling help college students gain awareness of their procrastination in a way that inspires behavioural change?

Framework

The theoretical framework below summarises the evidence that procrastination is problematic for college students and reviews common interventions. It then describes the purposes of self-monitoring and reflective journaling, including explanations of how these activities deepen thinking and encourage change.

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Procrastination among college students

Procrastination is the tendency to postpone activities, often against better judgement. As many as 95% of college students procrastinate to some extent, and about half of all college students procrastinate to a degree that has notable negative physical, mental, or academic consequences (Steel 2007). Researchers have found negative connections between procrastination and students' grades (Van Eerde 2003), use of effective learning strategies (Howell & Watson, 2007), and persistence in college (Sauvé et al. 2018). Ferrari (2001) found that chronic procrastinators had lower speed and accuracy under time constraints as compared with their speed and accuracy when not under time constraints. This finding suggests procrastinators perform worse, rather than better, under pressure. Indeed, the more college students cram (i.e. aim to cover a large amount of content in the limited time remaining before a deadline), the less satisfied they are with their study habits (Brinthaupt and Shin 2001).

Researchers have examined various interventions aimed at reducing procrastination. Unexpectedly, Adamson, Covic, and Lincoln (2004) found no positive impact for an intervention that provided first-year college students with self-paced training on time management and organisational skills. The researchers concluded that future interventions may benefit from incorporating adult learning principles that help students see the relevance of time management. Rozental et al. (2015) conducted a thematic analysis of open-ended responses from individuals who completed Internet-based cognitive behaviour therapy intended to reduce procrastination. The findings revealed the intervention helped participants to develop hope, build momentum as a result of taking action, and reduce unhealthy self-judgement. Examining self-report survey responses, Grunschel et al. (2016) found that students who used motivational regulation strategies – for example, enhancing personal interest level, setting goals, and reminding themselves of how their work could support their learning and grades – were less likely to procrastinate. This connection led Grunschel and colleagues to conclude, 'strategies to regulate motivation should be part of interventions aimed to reduce academic procrastination and to promote success and well-being in the context of self-regulated learning' (p. 169).

More research is needed to better understand how procrastination interventions work. De Paola and Scoppa (2015) found that college students with a propensity to procrastinate were helped by receiving instruction in learning skills, including organising time, managing emotional responses to academic tasks, and setting clear goals. However, the researchers were 'not able to identify the specific mechanism driving this effect', leaving room for future research to explore what specific aspects of an intervention could benefit students who struggle with procrastination. In a meta-analysis of 24 intervention studies, van Eerde and Klingsieck (2018) concluded that procrastination was generally quite amenable to change yet also called for additional research to 'address in depth how participants experienced the intervention'. Identifying how participants experience a journal-based procrastination intervention is a primary intent of the present study.

Self-monitoring

Self-monitoring is a key component of self-regulation, an academic process that involves students' planning, monitoring, and reflecting with respect to their goals (Lichtinger and Kaplan 2011; Zimmerman 2000). The core attributes of self-monitoring stem from the work of scholars in the field of self-regulated learning. Self-monitoring involves 'students' efforts to observe themselves as they evaluate information about specific personal processes or actions that affect their learning and achievement' (Zimmerman and Paulsen 1995, 14). Self-monitoring focuses students' attention on specific goals or behaviours; doing so helps students identify and analyse their own role in an activity, including antecedents and possible causes (Bandura 1986). The areas students typically self-monitor include time use, reading comprehension, progress towards goals, study strategies, and test-taking skills (Van Blerkom and Van Blerkom 2004). Self-monitoring helps students identify areas of weakness and assess how well their current approaches are working (Zimmerman and Paulsen

1995). In sum, self-monitoring supports behavioural change and self-improvement by helping students gather information and use this information to guide future action (Bandura 1986).

These foundational definitions have guided correlational and intervention-based studies of the impact of self-monitoring. Studies have consistently demonstrated that college students who engage in self-monitoring, either through instructor/practitioner prompting or as part of their regular study habits, receive higher grades and attain learning outcomes more effectively than students who do not self-monitor. For example, college students diagnosed with ADHD who received self-monitoring instruction on top of study-skills and goal-setting instruction improved their academic strategies, grades, and goal attainment more substantially than students with ADHD who received only study-skills and goal-setting instruction (Scheithauer and Kelley 2017). In another study, college students who were prompted to self-monitor their note-taking performed better on tests than students who were not prompted to self-monitor (Kauffman, Zhao, and Yang 2011). Demonstrating the connection to behavioural change, student-athletes who self-monitored their class attendance improved their punctuality and reduced their number of absences (Bicard et al. 2012). In a questionnaire-based study, developmental college students were found to engage in self-monitoring less frequently than non-developmental college students, suggesting that teaching self-monitoring strategies may decrease performance gaps between these groups of students (Van Blerkom and Van Blerkom 2004). Providing additional evidence of the importance for college students, self-monitoring emerged as one of four key factors in a new assessment of college- and career-readiness (Lombardi, Seburn, and Conley 2011).

Zimmerman and Paulsen (1995) argued that faculty and staff could help college students improve their self-regulation by providing opportunities for self-monitoring. As procrastination is considered a 'quintessential self-regulatory failure' (Steel 2007, 65), it seems reasonable that providing opportunities for self-monitoring could also help college students reduce their procrastination. Indeed, Kachgal, Hansen, and Nutter (2001) suggest that practitioners can help students reduce their tendencies to procrastinate by having them monitor their time use. Because procrastination is often connected to a complex web of interpersonal and contextual factors, the form of self-monitoring used to address procrastination may need to go beyond the recording of behaviours to also include thoughts, feelings, and the surrounding environment. To prompt students to attend to such details, journaling might serve to combine the benefits of reflection with those of self-monitoring.

Reflective journaling

Reflection is an essential phase of self-regulated learning, a cyclical process in which individuals monitor and evaluate themselves and their outcomes in order to inform future planning (Hofer and Yu 2003; Zimmerman 2000). Reflection becomes a powerful tool for self-regulation when attached to an active, focused mental process such as writing (Bjork, Dunlosky, and Kornell 2013), which helps to organise and clarify thoughts (Moon 2004). Journaling, as a specific tool for reflection, brings past experiences into focus so they can be thoughtfully reviewed (Bolton 2010), prompting further learning (Moon 2004). As journaling is 'a device for working with events and experiences in order to extract meaning from them' and 'can be used to enhance what we do and how we do it' (Boud 2001, 9), it has a natural alliance with self-regulation. Empirical work bears out this connection by linking the prompting of reflective writing with enhancements in secondary and postsecondary students' study strategies and self-regulated learning (Gynnild, Holstad, and Myrhaug 2008; Hübner, Nückles, and Renkl 2010).

Reflective thinking is at the heart of journal writing and its benefits. As described by educational psychologist and philosopher John Dewey (1933), reflective thinking involves controlled, focused thought that can enhance understanding and aid problem solving. Used in educational settings, reflective journals can serve as a means through which students can monitor their thinking (Tanner 2012) and the broader context of their learning-related actions (Chang and Lin 2014). By 'recapturing the experience' (Chang and Lin 2014, 125) through the act of writing, students can explore assumptions, examine ideas from different angles, and use insights to guide their choices (Boud 2001).

Prior research elucidates how journal writing supports change and development. In a focus group study, teachers who discussed the role of reflective journal writing in their teacher education programmes indicated that journaling enhanced their self-awareness and subsequently helped them understand their habits and address areas where they could improve (Abednia et al. 2013). An analysis of journal entries kept by medical students revealed that writing helped students attain a deeper understanding of their emotions and greater ability to reflect on their actions (Hashemi & Mirzaei, 2015). Themes in a qualitative analysis in an English composition class indicated that journaling helped students think about themselves, reflect on their approaches to learning, and express their feelings (Myers, 2001). All told, engaging in reflection through journal writing stimulates cognitive, emotional, and behavioural components of personal development.

The present study

Procrastination is a pervasive issue among college students. Both self-monitoring and reflective journal writing are promising tools for supporting change; however, it is unclear whether and how these benefits transfer to the challenge of procrastination. The present study explores college students' experiences using journals to monitor and reflect on their procrastination tendencies and seeks to uncover mechanisms by which journal writing enhances students' abilities to overcome procrastination.

Method

The qualitative study used a thematic analysis of written responses and interview transcriptions to investigate the role of journal writing in reducing students' procrastination tendencies.

Participants

Participants in the study were 11 undergraduate students at a large four-year university in the Midwestern United States in Spring 2013. The students had a mean age of 21.1 (SD = 2.7) and were from a range of majors including Nursing, Human Nutrition, and Marketing. Six of the students were female and five were male. Table 1 summarises participants' backgrounds.

Procedures

All procedures were approved by the university's Institutional Review Board. Participants were recruited from an introductory Anatomy course serving students with interests in health sciences and related fields. The first author visited the Anatomy lab sections and sent a follow-up recruitment email to invite college students who were willing to share their experiences with procrastination in a series of journal entries and a follow-up interview. Participants were informed that, as part of a research project, their own words and insights would be used to provide a thorough understanding of procrastination in college. Participants selected a pseudonym to protect their identities and completed an informed consent form allowing the information they provided to be used for research purposes. At the end of the study, each participant received an electronic gift card.

Students completed all journal entries by following an emailed link at the beginning of the study (for the initial journal) and twice weekly for three weeks (for the biweekly journals). In the initial journal entry, students described situations that typically influenced their procrastination and responded in depth to the prompt: 'What is the experience of procrastination like for you? What do you typically do, think, or feel when you procrastinate?' Table 1 contains a representative quote describing each student's procrastination at the beginning of the study. In the biweekly journals, students reflected on recent experiences with procrastination by responding to several questions, including a question about times they had wanted to procrastinate but had not. Figure 1 provides

Table 1. Characteristics of study participants.

Pseudonym	Major (Minor)	Age	Sex	Description of Typical Procrastination Experience
Betty	Nursing	18	F	'I typically procrastinate with studying, writing papers, and cleaning. I hate doing those things so I find any excuse I can to avoid starting (including eating and painting my nails).'
Catherine	Dental Hygiene (Dance)	19	F	'I procrastinate when I really don't want to do something. It has to be something I don't like. It kind of nags me though because then the project is always in the back of my mind and I know I have to do it sometime soon.'
Chloe	Human Nutrition	22	F	'When I procrastinate I think that I have many other things that need to be done or I'll think that I'll just work on it tomorrow (typical procrastinator response). I tend to justify my reasoning for procrastination by telling myself that . . . I had a long day and this time/thought consuming task can be done when I have more energy.'
Ericka	Human Nutrition	21	F	'I have become a serial procrastinator and procrastinate on nearly all work. . . . I usually have slight anxiety associated with last minute work because I worry that I waited too long and won't have enough time to complete the work.'
Greg	Health Information Management and Systems (English)	21	M	'It creates unneeded stress on myself. Instead of doing projects when I have free time, I put them off. This causes me to stress out until I force myself to complete them.'
James	Marketing	28	M	'There's always this feeling of regret that comes along afterwards . . . . Then, I usually feel pretty guilty of not doing anything productive since I just wasted some valuable time. I feel like as if I have poor time management skills.'
Katie	Nursing	22	F	'I always think I will have time to get the studying done, but then before I know it the test is a day away and I am fretting and worrying about not doing well. I also tend to procrastinate longer on subjects that do not interest me.'
Liz	Nursing	19	F	'Procrastination stresses me out immensely . . . . When I procrastinate, I feel stressed, anxious, and dread the result of my lack of dedication to a task. My mind races 100 miles an hour and I usually get a headache before tests because I think of all of the times I should have studied but did not.'
Manny	Health Information Management and Systems	19	M	'I feel very unmotivated and usually overwhelmed. It is almost a moment of helplessness so I feel as if there is nothing I can really do to combat it.'
Sean	Microbiology (History)	22	M	'I usually think there is plenty of time to do something later, and that I would rather be doing something else right now. I feel a slight dread in the back of my mind if it is a big project or paper that I am procrastinating on, and this dread usually makes me want to procrastinate more.'
Thomas[a]	Microbiology	22	M	'After procrastinating, I 1. . . . feel upset with myself, 2. force myself to finally get started on working, 3. promise myself I will make an effort to not procrastinate in the future, 4. continue procrastinating until the literally the last possible moment, 5. barely finish assignments on time, 6. take a deep breath and can't believe I earned a good grade on an assignment that I should have spent more time one, 7. procrastinate again. It's a vicious cycle.'

[a] Did not participate in the interview portion of the study

Which dates are you reflecting on in this journal entry?

From:

To:

Please **describe any procrastination you engaged in** during the dates you indicated above. Please elaborate and provide detail in order to portray your unique experiences.

Please provide any additional information about the following:

- What **assignments** did you procrastinate on?
- What did you do **instead**?
- What were the main **reasons** for procrastinating?
- What were the **results** of procrastinating?

What do you remember **thinking or feeling as you procrastinated**? What has the experience of procrastination been like for you lately?

Were there any times when you **wanted to procrastinate but didn't**? What happened? Please describe the experience as fully as possible.

Figure 1. Biweekly study journal questions.

a screenshot of the journal entry form. The journaling pages were administered via Qualtrics, a secure online survey platform, and were accessible only to the researchers and participants.

Ten students took part in a follow-up semi-structured, individual interview to discuss specific journal excerpts in depth. In addition, each student was asked to discuss the act of journal writing itself (e.g. 'What was the experience of writing study journals like?' 'Did it affect you in any way?'). The interviews lasted an average of 45 minutes each. Interviews were recorded and transcribed verbatim.

Analysis

The study used inductive thematic analysis, a qualitative methodology that involves multiple passes through the data to identify 'recurrent ideas or topics' that emerge in a variety of contexts, using different words, and across participants (Hayes 2000, 173). The journal entries and interview transcripts were read several times to begin the process of identifying consistent concepts (Erickson 1986; Hayes 2000). Reflective memos and annotations were written to capture initial thoughts, questions, and reactions. Any statements that related to similar topics were then excerpted and sorted into ''proto-themes'' (Hayes 2000, 176). The proto-themes were working labels for related ideas; they developed throughout the analysis and allowed for related content to be considered together while providing flexibility for emerging interpretations and new connections. All content within each proto-theme was reread several times to refine the understanding of each proto-theme and enhance alignment with the data through re-organisation and re-naming. An initial description for each proto-theme was drafted, after which the full dataset was read with reference to each proto-theme to incorporate additional context related to students' behaviours, thoughts, and feelings. Written descriptions were revised until the final themes adequately described and meaningfully organised 'the objective facts and essential meanings' of students' experiences (Kvale 1996, 4).

As modelled by Gullifer and Tyson (2010), the first author facilitated the primary analysis and the second author provided a credibility check on the interpretation of the journal entries and transcripts. The second author supported credibility by reading the raw data, reviewing the alignment of the supporting textual evidence, discussing the naming and organisation of the proto-themes, and participating in the revision of the written description of the final themes.

Findings

The ability to address procrastination was fuelled by self-monitoring and self-reflection, as revealed in four primary themes. One, students gained insight into their behaviours by recognising when and how they tended to procrastinate. Two, growth in self-awareness and situational awareness helped students identify procrastination in the moment, reflect on its (in)appropriateness, and change their behaviours. Three, self-generated motivation fuelled changes; by realising the ways in which procrastination was a problem, students identified their motivation for overcoming it. Four, students gained insight into what and how to change as a result of self-monitoring; this insight paired motivation with direction.

Understanding procrastination: gaining objective insight into the realities of delay

Students became aware of the frequency of procrastination in their lives by putting the experience into words. Engaging in regular journal writing made the experience of procrastination more immediate for students, helping them gain understanding of themselves and their tendencies. When writing, students were able to be honest with themselves about the degree to which they procrastinated, recognising procrastination as a habit whose impact accumulated over time. Catherine shared in her interview that 'it actually has shown me how much I *do* procrastinate. I never really realized it before.' Greg liked the consistency of sitting down to write the journals because 'it constantly, week after week, made me aware of what I was procrastinating on and just

helped me put what I was *not* doing into words.' The journal writing raised awareness by helping students articulate examples of procrastination in their own lives. Identifying the parameters of procrastination sharpened students' abilities to spot when they were off target from what they knew they should be doing.

Writing and self-observation created a context in which students could see themselves with greater self-awareness. For Thomas, seeing what he had written 'made me confront myself about how badly I did procrastinate last week.' It became hard to minimise procrastination when the facts of the situation were in front of him. For James, writing the journals served as 'a reality check, a little check in the mirror.' The mirror metaphor conveyed that the experience served as a reflection; it helped him see things about himself he would not have otherwise. James further explained that, rather than allowing him to continue denying his struggles, journaling 'just reminds me I still have a lot of work to do. I have some room for improvement, definitely.' In Sean's evaluation, regular journaling 'definitely helped me think about how I procrastinate a lot more. . . . Actually writing it out helped me realize why I procrastinate and how I do it and all that.' The act of writing was key; by making thinking visible, writing facilitated objective self-evaluation.

More than a vague sense of a need to improve, writing helped students to see roadblocks and areas to address. The process of realisation started with identifying the forms that procrastination took in students' lives and developed into being able to recognise the contexts for their procrastination. Catherine found 'it does show me areas where I do study, areas where I don't, and areas that I do put stuff off, and areas where I don't.' Students were not procrastinators on all tasks at all times. There were certain conditions under which students were more likely to procrastinate – these were conditions that students could then address. For example, Katie recognised her tendency for wishful thinking when reflecting on the prior week. She wrote, 'I remember thinking that I should be studying, but that I would have time later to do it. Fact of the matter is there is not time later. I should just study when I have the time.' With the objective lens provided by hindsight, she recognised that delaying tasks was rarely as harmless as it initially appeared.

Making changes in the moment: learning to see procrastination as it is happening

The journals helped students transfer self-awareness into their daily lives so they could recognise and address procrastination as it was unfolding. What began with identifying specific instances of procrastination developed into taking action to overcome procrastination. Chloe wrote, 'I feel like I've been noticing my procrastination moments more . . . and attempting to correct them.' A greater awareness of when she tended to procrastinate helped Chloe pull herself from the temptation to binge watch a television series that had recently been released:

> When I watched that tv show, I would tell myself, "You're procrastinating right now. Why are you doing this?" So I'm definitely more conscious of when I procrastinate, which I appreciate because it's good for me to realize "You're putting this off right now" or, if I'm watching tv, consciously being aware that "You're putting this off, so maybe you should just watch one episode . . . and then go do what you were supposed to do."

This experience illustrated the self-instruction that resulted from self-monitoring.

By becoming more attuned to their own tendencies, students learned to see procrastination as it was happening and could make self-directed changes in the moment. Multiple examples revealed how self-talk and self-instruction played a valuable role in students' getting back on track. Katie found that 'now I'm more aware of when I do procrastinate. And I'm like, "Oh no, I should not be doing that. I should be studying."' Betty, too, found that the journals helped with making decisions about her time use and what to say no to: 'I'd realize, ohhh, I'm kind of procrastinating on a lot of stuff. Maybe I should just do this tonight instead of going out to grab dinner with my friend.' Similarly, when catching himself putting off an academic task, Manny recounted how he said to himself '"Wait a minute! This is definitely procrastinating right now. I definitely need to do something about it."' By journaling, students

enhanced their abilities to catch themselves in the act of procrastinating. Doing so played an important role in helping them not be pulled into the inertia of delay and distraction.

Motivating action: emotions and evidence as catalysts for moving forward

Journaling helped students become attuned to the thoughts and feelings associated with their procrastination – 'it made you really think about it and address … how *do* I feel when I do that?' By engaging in introspection, students identified drawbacks in terms of their mental and emotional well-being. The downsides students associated with procrastination included worry ('I worry that I waited too long and won't have enough time to complete the work),' stress ('it creates unneeded stress on myself'), physiological symptoms ('my mind races 100 miles an hour and I usually get a headache'), and regret ('there's always this feeling of regret that comes along afterwards'). Manny's situation was a prime example of how reflection could prompt change. Writing about procrastination revealed to him that 'I hate feeling stressed out and that's all procrastination makes me feel in the end.' As a result, he found that 'in hopes of avoiding those stressed out feelings I forced myself to sit down and start doing the work.'

The motivation the journals provided was not just to avoid negative feelings but also to experience positive ones. Students raised their awareness that 'overcoming the urge to procrastinate' helped them feel 'incredibly satisfied' and led to a sense of 'progress,' 'relief,' or 'accomplishment.' Keeping journals brought attention to the positive thoughts and feelings fostered by productivity. After seeing what he had accomplished in a prior week, James wrote:

> I was determined that at the very least, I would have something crossed off my to-do list for the week. As soon as I got this task completed, I felt a good sense of relief and felt very refreshed. It reminds how why getting things done on time or earlier is a wonderful thing. It can leave me in a much better mindset.

Tracking their results provided students concrete evidence of difference in their outcomes when working ahead as opposed to procrastinating; seeing this evidence so clearly increased the resolve to work ahead.

In addition, the accountability fostered by the journals provided important reinforcement for students to work towards their goals. Greg explained:

> It made me constantly keep up with the material and get ahead and focus. I really wanted to do good on [a particular] test, and I think that study journals helped keep me on that path, because I'm constantly typing up week after week if I'm procrastinating or if I'm not. It kept me accountable for what I was doing in that week.

The accountability provided in the journals helped students be mindful about choices during the rest of the week. Sean, for example, described how he worked ahead on his quizzes, a new behaviour for him, noting, 'I was thinking about the journals when I was doing that.'

Making progress reinforced positive thoughts and feelings, motivating further action. Before, students described procrastination as 'a vicious cycle.' Now, the reciprocity of motivation and action created a virtuous cycle. Katie described: 'I accomplished something and … I can use this as a springboard to [say to myself], "Hey, let's keep this going. See if we can get more of something done."' Momentum and a glimpse of hope were particularly important for students who previously felt that there was nothing they could do to change their procrastination. James shared, 'Just taking this first step … made me feel a little bit better, like, "Hey, you know what? In spite of these struggles I've had with procrastination, I got something done."' Journaling increased the perception of small wins. Being able to see their own progress served as an important motivational tool for students who had felt discouraged.

Finding direction for change: self-awareness as a foundation for personal development

What students began to observe about themselves and their behaviours stimulated change. Thomas, for example, wrote, 'I engaged in no procrastination. My last journal entry inspired me to work hard this week, and I've been staying on top of all of my obligations for the past several days.' Shining a light on the activities they procrastinated helped students reallocate time. Catherine was surprised to find 'I've actually been keeping up with all my work and everything.' In addition, illuminating their personal distractions and time-wasters helped students restructure their study procedures and environments. Katie shared:

> It's just really changed … how I plan to study, like my time frames or what I'm gonna do. … I realize that if I have everything at the table, I don't tend to procrastinate, because I don't have to get up, because everything's right there. I don't have any excuses. … I really liked [the effect of the journaling] in that. I think if more people did it, they would realize that.

In all the stories of change, a key element was students' gaining self-awareness of what to change through paying greater attention to their behaviours.

The journals set aside a moment for self-monitoring and reflection that students would not typically carve out of their schedules. The journaling helped Liz focus on her choices, leading her to engage in self-instruction about what activities to do next. She explained:

> It made me more aware of what I was choosing to do and not to do. I think it helped me a lot. You have to be consciously aware by filling it out, so that kind of said, "Hey, you need to start working!"

The act of writing provided an opportunity for students to pause and reflect, to take a focused look at their behaviours and respond accordingly. Liz found it beneficial to 'just sit there and [ask myself], "Well, have I procrastinated?" It was kind of like keeping track of your own progress mentally, of how you're improving every week.' The self-assessment prompted by the journals was pivotal to students' abilities to overcome procrastination.

The journals also helped provide clarity for students who had considered reducing their procrastination before but did not know what to change. Importantly, what took place was self-directed change stemming from students' own insights. Ericka shared:

> I think [journaling] did help me clarify where my weaknesses were. … In the fall, I realized that [procrastination] was something that I needed to work on, and I wanted to work on that but I haven't really known what I need to do. So actually writing these has helped me look at where my weaknesses are and where I can actually strengthen it so I don't procrastinate as much.

Although Ericka had wanted to reduce her procrastination for a while, she had been unsuccessful because she did not have a clear sense of what to do differently. With the self-knowledge of specific weak spots she could address, Ericka could make progress.

Writing was more than a thought exercise; it helped students instruct themselves to action. Betty shared that writing the journals:

> taught me how to avoid the situation [of procrastination]. … If I have extra time, I'll do more work, because I'll be like, "Well, I'll probably end up procrastinating on this if I don't do it right now," so then I'll do it.

When writing the journal entries, she would consider what she was behind on and determine how to get back on track:

> I'd sit down to think about things I need to do, and things I needed to do that I should have done the day before, so I'd be like, "Okay, so maybe I need to tonight just focus on anatomy and get caught up on that."

Engaging in self-monitoring and reflection helped students identify how to use their time in order to address a major cause of procrastinating: feeling overwhelmed. For example, Liz found that 'doing little things to get to that big goal is helping me instead of sitting there and being overwhelmed by [thinking to myself] "write the [whole] paper!"' Uncovering these personalised keys to productivity

helped students develop new approaches to counter their typical procrastination tendencies. The direction for change paired with the motivation to change was a powerful combination.

Discussion

Procrastinators tend to have low confidence in their abilities to plan and monitor their use of effective learning strategies (Klassen, Krawchuk, and Rajani 2008), suggesting that many procrastinators know their methods are ineffective but do not know how to develop more effective methods. The awareness brought about by journaling seems to empower students to be their own problem solvers. Writing is valued as a tool for learning and development because it makes thinking visible (Bolton 2010; Boud 2001); the present study demonstrates that writing also benefits learning and development by making the phases of self-regulation visible. By regularly journaling about their procrastination, students focus attention on their thoughts, feelings, and behaviours; engage in self-evaluation; plan new approaches; and, re-entering the cycle of self-regulation, monitor and reflect upon these new approaches. The present study provides insight into the power of gaining awareness of procrastination through journals that prompt self-monitoring and reflection. It further suggests how these processes may help students develop internal motivation for change.

Self-monitoring and procrastination

As Hofer, Yu, and Pintrich have argued, 'students must monitor and assess their learning in order to regulate it' (1998, 68). The present study demonstrates how journaling can help students engage in self-regulation. Self-knowledge and situational knowledge are essential to self-regulation (Winne 2010); journaling can serve as a tool to raise awareness about the frequency, forms, and drawbacks of procrastination. Awareness helps students to recognise the signs of impending procrastination and to change their environment and responses. Self-monitoring increases awareness of behaviours that students can improve; this awareness can help students better identify these behaviours in the future and pay attention to what causes them.

Previously, students had found their procrastination habits resistant to change. Journaling made progress visible; it called attention to the benefits of making even small improvements and helped students recognise their capabilities for change The shift in students' feelings from discouragement to pride reveals the role of the journals in giving students hope, which aligns with prior research that demonstrates students with greater hope engage in less procrastination (Alexander and Onwuegbuzie 2007). Self-monitoring can become part of students' new habits; however, students first need to see benefit of putting forth the effort to self-monitor (Lally and Gardner 2013). The use of journals makes the benefits of self-monitoring readily apparent. Through paying attention to and recording their behaviours, students put into words how and why procrastination is a problem for them. They then can realise that the journals are helping them to procrastinate less – and that procrastinating less is helping their academic outcomes and outlooks.

Reflective writing and procrastination

The act of writing appears to bolster the process of self-understanding and to support students' self-directed change. Writing helps students see, track, reflect, and self-direct to a greater degree than when unassisted. Writing brings thoughts, feelings, and behaviours from the mind to the page, where they can be examined (Bolton 2010). With these patterns at the forefront, students can think more deeply about their beliefs and assumptions, consider the reasoning behind and impact of their choices, and ultimately be more intentional about their choices. The awareness that results from reflective writing thus helps to power the process of self-regulation (Zimmerman 2000).

Although online journals make use of technologies that have only become commonplace in the last decade or so, the type of thinking prompted by the journals resonates with principles of

reflective writing espoused by two time-honoured educational theorists. Specifically, students' experiences embody the characteristics that Dewey spoke of as being essential for reflective thinking: openness to new perspectives, attentiveness to consequences, and willingness to critique oneself (Dewey 1933). Moreover, Vygotsky explained that 'in written speech, we are obliged to create the situation, to represent it to ourselves' (Vygotsky 1934, 181–182). These forms of thinking explain why students who write journals may be able to step back and analyse their beliefs and habits related to procrastination. With self-generated truths in front of them, students can realise the need to change and begin to identify a path towards change. Along these same lines, university faculty and staff aiming to address procrastination could consider how to engage students in writing as way of representing their experiences, raising attentiveness, and engaging in compassionate self-critique.

Creating and regulating motivation

The prominence of self-motivation in overcoming procrastination is an important finding of the present study. The journaling experiences resonate with Zimmerman's statement that, as an important part of becoming a self-regulated learner, 'self-awareness … can produce a readiness that is essential for personal change' (2002, 65). That the desire for change came from within is key; students' increased self-awareness prompted a form of inner motivation that can only come through self-examination. The emphasis on self-motivation stands in contrast with approaches that seek to help students overcome procrastination or develop other effective study habits through direct instruction. Until students have identified their own personal and salient reasons for making a change, facts and tips about time management will often remain uninternalized and unheeded (Adamson, Covic, and Lincoln 2004). Telling students they *should* start or stop certain behaviours can raise defences and be counterproductive to change (Miller and Rose 2009). In contrast, self-generated messages about the ability to change and the value of academic behaviours can provide sustained motivation (Harackiewicz and Priniski 2018). Importantly, in the present study, students generated their own reasons and techniques for changing their behaviours. As researchers, we did not tell students how to reduce procrastination. We did not even tell students to try to reduce their procrastination, just to notice it. When students started to pay attention to their behaviour – what works, what does not, what the outcomes are, how procrastination makes them feel – they gathered the evidence needed to come to their own conclusions.

Procrastination is largely a problem of motivation. Students tend to postpone tasks they view as overwhelming, unappealing, or unimportant (Grund and Fries 2018). The journals' ability to make motivation salient was critical to subsequent behavioural changes. Prior studies of motivational regulation have investigated students' responses to hypothetical motivational problems or self-reported levels of agreement with strategies they tend to use. Wolters called for additional research to 'determine whether the strategies reported … are actually used by students in authentic academic tasks' (1998, 23). The present study revealed numerous student-directed, real-life examples of motivational regulation. These strategies included environment regulation (selecting and arranging effective study environments), proximal goal setting (focusing on small tasks and gradual improvement), and emotion regulation (taking action to increase positive emotions and reduce negative ones). The present study confirms the findings of survey-based studies that have demonstrated the link between motivational regulation and low rates of procrastination (Grunschel et al. 2016; Kim, Brady, and Wolters 2018; Wolters and Benzon 2013), while also demonstrating how college students implement strategies for regulating their motivation. These insights may be valuable in designing future interventions to develop college students' motivation for learning and abilities to overcome procrastination.

Limitations

Some unanswered questions suggest limitations of the study that future research can address. Were students fully committed to reflection, or did they primarily engage in reflection because they were prompted to do so? Students' interview responses suggest that journaling developed their reflective abilities, but future studies can better understand the reflective nature of such journals by conducting cognitive interviewing with students about the questions themselves (Bembenutty 2011). Was the three-week period chosen for the study optimal for invoking and sustaining change? Some researchers suggest habits can form in three weeks, but others argue that more time is needed (for a review, see Lally and Gardner 2013). We selected three weeks because this timeframe appeared to be long enough to encourage change but short enough for students to commit to. That is, the journaling project was intended to be motivating: big enough to appear impactful but small enough to feel manageable (Wolters 2003). However, follow-up studies are needed to gauge the extent to which students continue to engage in self-monitoring and self-reflection without the journaling prompts, as well as if certain intervention lengths encourage lasting habits.

Conclusion

Although procrastination is commonplace in college (Steel 2007), outside of research contexts 'the potential seriousness of procrastination is not as widely recognized as it should be' (Pychyl and Flett 2012, 203). The present study provides insights to increase the recognition of procrastination and support the reduction of procrastination. Journaling and the underlying processes of self-monitoring and reflection seem to be a promising approach for addressing procrastination among college students. Journaling is a way to help students become more aware of the seriousness of procrastination in their own lives while offering a high rate of return on the effort invested to keep the journal. A natural home for introducing journaling may be found in the variety of individualised support services (e.g. tutoring, advising, counselling, academic coaching) on college campuses (Barbuto et al. 2011; Robinson and Gahagan 2010). Journaling may also be incorporated into course assignments that encourage reflection while also providing accountability and structure (Hofer and Yu 2003). Future research should extend the present findings by examining the use of study journals with diverse student samples, at different time points, and in additional disciplines.

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No potential conflict of interest was reported by the authors.

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