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Enhancing students' well-being and studying in higher education: a comparison of two different study skill courses

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Introduction: University students face many challenges during their studies and the decline in university students' well-being is currently an internationally shared concern. Among the most important factors influencing students' well-being are time and effort management skills as well as psychological flexibility. The aim of this study was to compare two different study skills courses. One focused on time and effort management (TIMA) and the other on psychological flexibility (WELLS). The aim was to gain an understanding of what kinds of students apply for these two study skills courses and whether different student profiles gain different benefits from these courses.

Methods: A pre- and post-test design was utilized to explore changes in time and effort management skills and psychological flexibility during the respective courses. Students' final reports from the courses were additionally analysed qualitatively.

Results: The results showed that students' organised studying improved in both courses with no significant differences between TIMA and WELLS. Psychological flexibility increased only in the WELLS. A cluster analysis across all participants produced four different clusters of students based on their psychological flexibility and time and effort management scores at the beginning of the course. There were differences between the profiles in changes in psychological flexibility and organised studying in the two courses and during both courses students gained several benefits from these courses.

Discussion: This study showed that both time and effort management training and psychological flexibility training can produce multiple benefits for students. The results are further discussed, and practical implications are presented.

KEYWORDS

university students, study skill course, time and effort management skills, psychological flexibility, organized studying, well-being

1 Introduction

During their studies, university students encounter many challenges, involving both academic and personal issues (Pedrelli et al., 2015). The decline in university students' well-being is a shared concern internationally, and depression, anxiety and experienced stress are increasingly common among students. For instance, Auerbach et al. (2018) found that over a third of students (35.3%) reported having experienced at least one mental health problem in their lifetime and one fifth (21.2%) reported having anxiety disorders.

Moods and emotions have been found to influence a range of cognitive processes that are relevant to academic learning (Boekaerts and Pekrun, 2015). Negative emotions and moods such as anxiety and shame impair cognitive performance and learning by diverting attention away from the task and depleting the cognitive resources required for effective task execution (Boekaerts and Pekrun, 2015). These emotions may also undermine intrinsic motivation and increase the use of rigid, less effective learning strategies. Thus, anxiety, in particular, impairs performance on cognitively demanding tasks (Boekaerts and Pekrun, 2015). A recent study (Lázaro-Visa et al., 2019) confirms the relationship between managing negative emotions and student well-being and satisfaction. Thus, anxiety disorders, among other mental health problems, may further cause challenges for students' study progression, academic performance and successful studying (see e.g., Auerbach et al., 2018).

Research has consistently demonstrated a significant positive correlation between self-regulation skills and psychological well-being (Singh and Sharma, 2018; Rodríguez et al., 2022). Self-regulation is defined as the self-directed management of thoughts, emotions, and behaviors aimed at achieving specific goals (Zimmerman, 2002). In the context of learning, individuals must establish objectives, plan their learning processes, implement strategies, and monitor their progress, making adjustments to their learning behaviors as necessary (Zimmerman, 2002). Throughout the various phases of self-regulation, learners are required to allocate both cognitive and metacognitive resources in addition to addressing the primary learning task (Seufert, 2018).

Beyond cognitive regulation, the capacity to manage emotions and behavior during academic engagement has been linked to a reduction in emotional and behavioral issues (Boekaerts and Pekrun, 2015; Rodríguez et al., 2022). Thus, self-regulation encompasses the regulation of behavior, cognition, and emotions (Gross, 2015), highlighting the importance of emotional regulation in enhancing students' well-being and academic performance. Emotional regulation involves the strategies individuals employ to navigate emotion-inducing situations and manage their emotional experiences (Koole et al., 2011). In this process, individuals aim to alter the natural trajectory of their emotional responses (Koole et al., 2011).

Previous research has identified that time and effort management skills—central components of cognitive regulation—are among the most important individual-level factors influencing higher education students' well-being (Aeon et al., 2021; Heikkilä et al., 2012).

Many students struggle with time and effort management when managing their schedules (Hailikari and Parpala, 2014), and thus balancing studying and personal life can be difficult for students. This, in turn, may lead to high levels of stress, exhaustion, and problems in academic performance (see e.g., Heikkilä et al., 2012). Thus, time and effort management skills are important factors influencing students' well-being, academic performance and study progression in university studies, whereas poor skills in managing and scheduling studies are related to challenges in study progression (Rytkönen et al., 2012).

Another important factor influencing well-being both in work and educational settings is psychological flexibility, which is a skill to regulate emotions and feelings. Psychological flexibility has been shown to be related to better well-being and managing in work life and higher education contexts, and it has also been shown to have a strong relationship with student engagement and study progression, as well as students' well-being (Asikainen et al., 2018; Bi and Li, 2021). In addition, psychological flexibility has shown to be in relation with success expectation and progression in studies (Hailikari et al., 2022), and elucidating procrastination together with time and effort management skills (Asikainen and Katajavuori, 2021).

To facilitate overcoming the different challenges university students face, many successful interventions have been developed to improve students' studying and time management skills in universities (e.g., Häfner et al., 2015; Barrable et al., 2018; Biwer et al., 2020). In addition, interventions aiming to improve psychological flexibility have been successful in improving university students' well-being (Räsänen et al., 2016; Hailikari et al., 2021). These interventions, which have generally been developed to focus on study skills or enhancing students' well-being overall. However, what is not yet fully researched is how do different students or different student profiles benefit from these kinds of study skills and well-being –related courses. Moreover, it is currently unclear what kind of interventions would be most beneficial for different students representing, for example, students with poor study skills or students with weaker well-being? This study aims to bridge this research gap by exploring students in two different study skills and well-being courses, examining what kind of students apply to these courses, and how do different students benefit from these courses.

1.1 Time and effort management and psychological flexibility as factors supporting well-being

Previous research has shown that time and effort management as well as skills in psychological flexibility are factors which contribute to better well-being. A connection between time management and well-being has been well established and good time management has been associated with better well-being (Aeon et al., 2021; Häfner et al., 2015). In higher education, self-regulated learning is manifested, for example, in/ through time and effort management. Time and effort management skills encompass the capabilities of university students to establish personal objectives and adhere to their academic goals, regulate their use of time, and prioritize the tasks they need to complete (Entwistle et al., 2001). These skills have been identified as the most vital elements in promoting academic advancement (e.g., Häfner et al., 2015; Adams and Blair, 2019). On the other hand, many higher education students struggle with these skills and encounter difficulties in changing time and effort management skills during their studies (Parpala et al., 2017). Research has shown that time and effort management skills (referring to students' skills to set goals for themselves and to study accordingly) are among the most important factors in enhancing students' study progression and studying (Asikainen et al., 2022; Rytkönen et al., 2012). If students do not use study schedules, they might fail to pass simply due to insufficient exam preparation time instead of, for instance, sufficient knowledge or skills on the topic (Rytkönen et al., 2012).

Psychological flexibility has also been associated enhanced well-being. Conceptually, psychological flexibility refers to an individuals' ability to stay engaged with the present moment and manage their emotions and behaviors, even in the face of distressing thoughts or feelings, and further, to manage their emotions, behaviors and take values-based action even in the face of distressing thoughts or feelings (Hayes et al., 2006; Hayes, 2019). The concept of psychological flexibility originates in acceptance

and commitment therapy (ACT), where the central aim is to improve one's psychological flexibility (Hayes et al., 2006). People with high psychological flexibility are able to act according to their own values as well as accept and confront their negative thoughts, emotions and sensations rather than avoiding them (Bond et al., 2010). The central process in psychological flexibility is defusion, namely the ability to look at one's own thoughts as separate parts of internal behavior and not consider them to be the truths about the world or oneself (Hayes et al., 2006). In this way, thoughts are less likely to hinder individuals from living a value-based life. Thus, values are the foundation for building psychological flexibility, and value-based action and behavior are necessary for life satisfaction and the experience of a meaningful existence (Hayes, 2019).

Promoting psychological flexibility has been shown to improve all aspects of well-being (Hayes et al., 2006; Räsänen et al., 2016). Research has indicated that psychological flexibility plays a central role in stress management (Viskovich and Pakenham, 2018) and life management (Kashdan et al., 2006), stress management and well-being (Thompson et al., 2021) as well as self-compassion (Marshall and Brockman, 2016). It has also been shown to play a central role in improving performance, well-being, and results in the workplace (Puolakanaho et al., 2020). On the other hand, low psychological flexibility has been associated with, for example, a low quality of life, sleeping problems (Kato, 2016), and eating disorders (Masuda et al., 2010).

Psychological flexibility may also play an important part important in university studies. Evidence suggests psychological flexibility is positively related to positive emotions in learning (Parpala et al., 2017), self-regulation (Eisenbeck et al., 2019), and study progression (LeJeune and Luoma, 2019; Parpala et al., 2017). Recent pilot studies have indicated that the theory of psychological flexibility is the core process in explaining procrastination in the higher education context (Gagnon et al., 2016) and it has also been shown to be particularly important for students who are at a higher risk of academic failure (Jeffords et al., 2018). Thus, the importance of psychological flexibility is evident in the university context, therefore making it central to foster the development of psychological flexibility among university students.

1.2 Interventions in improving university students' studying

Time management skills are skills that can be trained and improved by, for example, practicing scheduling and goal setting, and thus, it has been concluded that these skills should be taught to students (Kitsantas et al., 2008). Many successful interventions have been developed to target improving students' studying and time management skills in higher education contexts (e.g., Barrable et al., 2018; Biwer et al., 2020). Interventions aiming to develop students' self-regulation have been shown to be successful in improving students' study achievements in their studies (Azevedo et al., 2004). Time management interventions have also been found to affect students' stress levels (Häfner et al., 2015).

In addition to the interventions related to studying and time and effort management, an increasing number of interventions aiming to build students' psychological flexibility have been developed in the past few years. Thus far, ACT-based interventions in higher education contexts have been successful in improving students' well-being and reducing stress levels (Räsänen et al., 2016; Puolakanaho et al., 2020; Levin et al., 2017). Furthermore, ACT-based interventions have been found beneficial in both face-to-face and web-based settings (Barak et al., 2008).

To summarize, recent research highlights the relevance of both psychological flexibility and time management as distinct yet complementary targets for study skills interventions in higher education. Interventions grounded in Acceptance and Commitment Therapy (ACT) and the practice of psychological flexibility skills aim to enhance students' capacity to manage difficult thoughts and emotions, stay present, and act in accordance with personal values. This approach has been shown to reduce stress and anxiety while promoting well-being and adaptive functioning in academic settings (Levin et al., 2017; Räsänen et al., 2016; Puolakanaho et al., 2020). In contrast, time management interventions focus on developing practical skills for organizing, prioritizing, and efficiently allocating time for academic tasks. These interventions have been associated with improved academic performance and reduced study-related stress (Claessens et al., 2007; Barrable et al., 2018; Biwer et al., 2020). While time management fosters cognitive regulation, psychological flexibility supports emotional regulation and value-driven engagement—both essential components for sustainable student well-being.

Interventions that integrate both psychological flexibility and study skills are still relatively scarce, yet existing evidence suggests that such combined approaches can positively influence both students' well-being and their academic functioning (Asikainen and Katajavuori, 2021). However, it is not known how different student profiles benefit from different interventions that aim to improve students' study skills and well-being.

2 The aim of the study

The aim of this study was to compare two different kinds of study skills courses in order to gain an understanding of what kinds of students apply for different study skills courses, and whether different student profiles gain different benefits from these courses. The study aims to answer the following research questions:

What kind of students apply for study skills courses?

How do these students differ in these two courses concerning their time and effort management skills and psychological flexibility?

How does psychological flexibility and time and effort management skills change during the courses at a general level and between different students?

What kind of benefits do students gain from the study skills courses? What kind of differences are there between different students in different courses?

3 Methodology

3.1 Participants and the data

The participants in this study comprise university students attending two different study skill courses in autumn 2019. A total of 109 students participated in an eight-week *Towards better well-being and studying* course (WELLS). The data consisted of students participating in two separate WELLS courses starting at the beginning

of September and the end of October. A total of 109 students signed up; 84 of them completed the course, of which 74 gave consent to participate in the study and completed the questionnaires. Participants of the course represented different disciplines and faculties of the University; like life sciences, including veterinary, pharmacy, biosciences, forest and agriculture, sciences, and education and were 1st to 5th year students. Of the participants, 88% were women and 12% men and the age range varied from 22 to 54 years.

The WELLS course was a voluntary online course that aimed to promote students' psychological flexibility and time and effort management skills. The 7-week long course consisted of weekly themes related to psychological flexibility, study processes and well-being. Each week consisted of tutorials, self-study materials, experimental exercises, as well as discussions with a peer group. The content in each week reflected different aspects of psychological flexibility comprising, for example, a consideration of one's values, focusing on the present, practicing seeing one's thoughts as thoughts and not as facts (defusion) and practicing acceptance of oneself and self-compassion. Study skills were also practiced consistently during the course. At the beginning of the course, students followed their time usage for 1 week and afterwards they were instructed to think of their time usage at the same time as considering their values and the things that were important to them. This course was a pilot version of the course described by Asikainen and Katajavuori (2021). The course was optional and was offered to all University of (*anonymized*) students. Students gained three credits from the course if they completed all the assignments in a given schedule; the course was graded as pass/fail.

The other course was a voluntary online course which focused on improving time and effort management and the well-being of students (TIMA). This course was promoted for students who struggled with time and effort management and well-being. The course was specifically targeted at students in the Faculty of Arts. In total, 135 students voluntarily took part in the study, filled out the questionnaire in the fall 2019, and out of these, 90 students finished the course, and 80 responded to the questionnaire at the end of the course. Of these students', 84 percent ($N = 67$) were female, 1.4% ($N = 9$) were male, and 2 students answered other gender. Age ranged between 20 and 56. Students gained two credits from the course if they completed all the assignments in a given schedule; the course was also graded pass/fail. The course lasted for 5 weeks, each week having a different theme and task related to time and effort management and procrastination. One example was the importance of making long-term and short-term study plans, practicing prioritizing, following one's own time usage, considering factors that cause procrastination, and sharing ways to overcome procrastination.

The WELLS and TIMA courses were primarily advertised on different campuses within the university and during different time periods. Participation in the courses was voluntary, and students chose which course to attend. In both courses, the data were collected both at the beginning and at the end of the course, meaning/indicating that a pre- and post-test design was used to explore the changes during the respective courses. Students completed the same questionnaires during the first and last weeks of the course. In addition, students wrote a final report at the end of both courses on the benefits and shortcomings of the course for their learning. Students in both courses were carefully informed about their study rights at the beginning of the course and their consent when joining the study was asked for. Participating in the study was voluntary and refusing to participate in the study did not affect the completion of the course.

3.2 The instruments

The organized studying subscale focusing on time and effort management skills was used from the HowULearn questionnaire (Parpala and Lindblom-Ylänne, 2012), and included four items (e.g., I carefully prioritize my time to make sure I can fit everything in), and were measured a Likert-scale from 1 = totally disagree to 5 = totally agree. The HowULearn questionnaire and its subscales has been widely utilized and validated both nationally *(anonymized)* and internationally (e.g., Cheung et al., 2020; Rytkönen et al., 2012).

Psychological flexibility was measured with the Work-related Acceptance and Action questionnaire (WAAQ) (Bond et al., 2013), which was previously adapted to suit the higher education context *(anonymized)* and it included 7 items with a 5-point Likert scale (e.g., "I can study effectively, even when I doubt myself") (Asikainen et al., 2018).

In addition, students' final reports from the course were used to explore in greater depth what the students had gained from the course. In the final reports, students were asked to reflect on their learning during the course as well as on their experiences of the benefits of the course for their learning and studying.

3.3 Analysis

An analysis of missing values was performed on the items used to measure the scales. There were only four distinct missing values across different items and, these were substituted with the mean values. The sum scales measuring time and effort management skills and psychological flexibility were formed based on previous studies (Asikainen et al., 2018; Bond et al., 2013; Entwistle et al., 2001). Example items and Cronbach's alphas for each scale can be seen in Table 1. As the criteria for normality were met, we used the Paired sample *t*-test and repeated measures ANOVA (Girden, 1992) were used to explore the changes in organized studying and psychological flexibility at a general level. Descriptive statistics and cluster analysis were used to examine what kind of students apply for study skills courses. K-means cluster analysis was conducted on the scales measuring organized studying and psychological flexibility.

Change variables for the time and effort management scale and for psychological flexibility were calculated using the pre- and post-course measurements in order to explore to what extent students' scores on these scales had changed during the course by subtracting the first

TABLE 1 Descriptives statistics and differences in organized studying and psychological flexibility between the courses.

Course	TIMA course		WELLS course		*F*	*p*
	M	sd	M	sd		
Organized studying	2.69	0.80	3.00	0.89	5.20	0.024
Psychological Flexibility	2.75	0.79	3.04	0.87	4.82	0.030

measurement from the second measurement. One-way ANOVA was used to explore whether there were statistically significant differences in change variables between the clusters and the courses.

Finally, the final reports (10 per cluster from both study-skill courses) were analysed to explore in greater depth what kinds of changes the different student clusters reported regarding the benefits of the courses. It was chosen randomly 10 final reports per cluster from both courses, however in the TIMA course there were only four students in one profile (HH). Thus, 76 final reports were analysed with qualitative content analysis in order to find out what kinds of benefits or effects students described that they gained from the courses. The first and second authors analyzed the reports by following the principles of inductive qualitative content analysis (Elo and Kyngäs, 2008). This method enables the systematic classification of textual data through a process of coding and categorization. In the analysis categories were derived from the final reports, progressing from open coding to grouping and abstraction (Elo and Kyngäs, 2008).

In this study, the analysis proceeded through open coding of the material, followed by the organization of codes into subcategories and generic categories through iterative comparison and abstraction. This approach ensured that the findings remained grounded in the data while allowing meaningful conceptual interpretation (Elo and Kyngäs, 2008). All text segments where students discussed whether or not this course benefited their studies were identified and coded for analysis. One text segment could include more than one kind of benefit. The authors independently coded the first part of their journals to generate preliminary codes, and grouped and categorized codes according to their meanings, similarities, and differences. After that all the authors discussed about the codes and their meanings which allowed for the refinement of the analysis criteria throughout the process and ensured consensus was reached. After these discussions and after elaborating the categorization, the remaining final reports were analysed. The first and second authors analyzed these reports independently. To ensure reliability, a subset of the data (20%) was independently coded by these two researchers. Inter-rater reliability was assessed using Cohen's kappa ($\kappa = 0.82$), indicating high level of consistency between the coders (Landis and Koch, 1977).

The categories which were formed during the first stage (16) were reduced in number by grouping them together into four categories.

4 Results

To answer the first research question, descriptive statistics and cluster analysis were conducted. The analysis revealed that students differed between the courses in their time and effort management skills (organized studying) and psychological flexibility. The students participating in the TIMA course scored lower on both psychological flexibility (M = 2.75, sd = +/−0.79, $F = 5.20$, $p = 0.024$) and time and effort management skills (M = 2.69, sd = +/−0.80) than students participating in the WELLS course (psychological flexibility M = 3.04, sd = +/−0.87, time and effort management M = 3.00, sd = +/− 0.89).

In order to explore in more depth what kinds of students apply for the study skills courses, a cluster analysis was carried out. In both courses, the cluster analysis produced four different clusters of students on the basis of their scores on psychological flexibility and time and effort management skills at the beginning of the course. The first cluster comprised students who had scored low on both dimensions, *low organized studying and low psychological flexibility (LOLO)*. The second cluster comprised students *who scored low on psychological flexibility and high on organized studying* (*LFHO*), whereas cluster three comprised students who scored *high on psychological flexibility and low on organized studying (HFLO)*. The fourth cluster comprised students who scored high on both dimensions, *high organized studying and high psychological flexibility (HH)* (see Table 2 for details). In the TIMA course, the fourth cluster was so small ($n = 4$) that it was not included in further analysis.

4.1 Changes in psychological flexibility and time and effort management skills during the courses

First, general level changes in organized studying and psychological flexibility in the courses were explored with paired sample ANOVA/a repeated measures ANOVA and a paired sample *t*-test. According to paired sample GLM, the changes in organized studying did not differ between the courses (time*course = 0.252) but changes in psychological flexibility did (time*course = 0.024). The paired sample *t*-test analysis revealed that in both courses there was a statistically significant increase in organized studying ($p < 0.001$) (see Table 3). In the TIMA course, the change in psychological flexibility was not significant ($p = 0.261$), but in the WELLS course, a statistically significant increase was found ($p = 0.003$).

Person-oriented exploration of the changes in psychological flexibility and organized studying in different clusters showed that there were some differences between the clusters. In the WELLS course, there was no difference in the profiles concerning the change in psychological flexibility ($p = 0.223$), but changes in organized studying differed between the profiles (t = 5.45, $p = 0.002$).

According to the test, the HH profile differed from the LOLO profiles ($p = 0.011$) and the HFLO profiles ($p = 0.006$) so that in the LOLO and HFLO profiles the scores in organized studying increased more during the course in comparison to the HH profile. No other statistically significant differences were found (see Table 4).

In the time and effort management course, TIMA, there was a statistically significant difference between the change variables

TABLE 2 Cluster centers.

Sum scale	1 LowOrg-LowPF (LOLO) (*N* = 59)	2 LowPF-HighOrg (LFHO) (*N* = 49)	3 HighPF-LowOrg (HFLO) (*N* = 30)	4 HighOrg-HighPF (HH) (N = 20)
Psychological flexibility	2.10	2.94	3.55	4.19
Organized studying	2.22	3.43	2.22	4.16
N = WELLS course	24	25	14	16
N = TIMA course	35	24	16	4

TABLE 3 Changes in psychological flexibility and organized studying in both courses.

Course	Organised studying M1 (SD)	Organised studying M2 (SD)	*p*	*t*	*d*	Psychological flexibility M1 (SD)	Psychological flexibility M2 (SD)	*P*	*t*	*d*
TIMA	2.69 (0.80)	3.12 (0.84)	<0.001	−5.26	0.73	2.75 (0.79)	2.70 (0.64)	0.261	0.64	0.66
WELLS	3.00 (0.89)	3.29 (0.89)	<0.001	−3.67	0.72	3.04 (0.87)	3.21 (0.87)	0.003	−2.81	0.54

TABLE 4 Differences between the changes in organized studying and psychological flexibility during the WELLS and TIMA courses.

Change variable	LOLO	LFHO	HFLO	HH	*t*	*p*	η^2
WELLS course							
Organized studying	0.54 (0.64)	0.13 (0.53)	0.68 (0.87)	−0.14 (0.69)	5.46	0.002	0.155
Psychological flexibility	0.29 (0.56)	0.17 (0.57)	0.23 (0.52)	−0.06 (0.45)	1.49	0.223	0.,096
TIMA course							
Organized studying	0.58 (0.79)	0.15 (0.36)	0.67 (0.88)		3.53	0.034	
Psychological flexibility	0.25 (0.63)	−0.04 (0.45)	−0.51 (0.60)		9.73	<0.001	

measuring psychological flexibility (t = 9.73, $p < 0.001$) and organized studying (t = 3.53, $p = 0.034$) (see Table 4). According to the Tukey's test, the HFLO differed from the LOLO profile ($p < 0.001$) and the LFHO profile ($p = 0.038$) regarding the change in psychological flexibility. In the HFLO profile, psychological flexibility decreased more than in the other profiles. Interestingly, there were differences between the profiles according to the ANOVA analysis regarding the changes in organized studying. However, Tukey's test showed almost statistically significant differences between LFHO and both LOLO ($p = 0.063$) and HFLO ($p = 0.064$) regarding organized studying.

4.2 Qualitative data

First, we explored what kinds of benefits the students gained from the courses. The analysis of the final reports showed that all the students experienced positive effects from courses related to their studies. Students in both courses described various positive effects of the courses. The themes which were formed were (1) better well-being, (2) increased self-knowledge and self-reflection (3) Improved studying and time and effort management, (4) defusion and self-compassion (Please see Table 5).

The theme *better well-being* included students' comments where they expressed that during the course, their well-being had improved during the course and that their stress had decreased and coping improved. They had learnt to respect their own well-being, like sleeping or exercising enough and having time for relaxing and recovering. Furthermore, students had learnt to take action to improve their well-being during the course. These students' comments represent this theme: [1]

> *"By doing the exercises I realized how many things affect my mind, health, and motivation. I have learnt to move from stressing over things to doing things which are better for me. I have increased my body awareness during this course and leant to respect the needs I feel my body has."* (Student, WELLS-course).
>
> *The course taught me to care for my own well-being in a new and more intentional way* (Student, WELLS-course).
>
> *During the course, I focused on reflecting on the factors that affect my well-being. I thought about what kinds of things cause me stress and how to avoid them. Through the course, I became more aware of many everyday factors that undermine my well-being* (Student, wells-course).
>
> *"The main thing I learned from this course is how simple time management actually is in the end. Overall I would say that the*

TABLE 5 The themes and subcategories of the qualitative results.

Theme	Sub-category
Well-being	Better well-being Stress decreased Coping improved
Increased self-knowledge and self-reflection	Self-awareness increased Awareness of one's own thinking patterns increased Awareness of one's own well-being increased Awareness of oneself as a learner increased
Improved studying and time and effort management	Improved and more effective academic performance Improved time management skills Setting of goals and sub-goals Learning new study techniques
Values, defusion and self-compassion	Identifying personal values Strengthening value-based action Recognizing and managing with negative thoughts Cognitive defusion Developing a more self-compassionate attitude

1 All excerpts have been translated from Finnish into English by the authors.

> *course has helped me focus on the essentials of time management, and I feel that my well-being and, for example, my stress levels related to studying have significantly decreased.*" (Student, TIMA course).

Many of the students' comments were related to the theme of *increased self-knowledge and self-reflection*. Students reported that during the course they had realized many new things about themselves and their own thinking patterns, their well-being or themselves as a student, and they had become aware of their learning and study skills. Students reported that during the course they had realised that they had poor study skills or that they did not use enough time for their studies. This theme also included comments where students had realized what is meaningful for them in their life. The comments below represent this theme:

> *"I realised that I'm quite organised in my studies and I have knowledge of time management. I think my biggest problem is how to get things done. I know how to manage my time. But still sometimes I cannot get some things done. This course had helped me with this problem.*" (Student, WELLS-course).
>
> *"The most important thing in this course was realising that I need to improve my time-management skills. I also realised new things about my mind and thoughts – I have adopted a mindset and a way of thinking which is not easy to break away from even if it were beneficial for me to do that. --- This course helped me to realise this, and I felt that I learnt about new tools to investigate this theme further.*" (Student, WELLS-course).
>
> *"During the course, I learned important things about schedules, about myself, and about how I approach and act on the goals I set for myself--- During the course, I increasingly realized that I am a fairly practical person and learner. I need clear routines, schedules, and goals, and above all, a goal and motivation to get things done. The change in my own thinking is quite significant, as I now want to think more carefully about the reasons for procrastination than before and I am motivated to change my behavior.*" (Student, TIMA-course).

The third theme was *Improved studying and time and effort management*. This theme included all the students' comments that their studying and time management had improved during the course. Students reported that they had learnt new and more effective study skills during the course. They had also learnt to manage their time better by setting goals for their studies and by scheduling their studies and assignments in their weekly timetable. By learning to manage their time and studying better, many of the students felt that their studying and academic performance had become more effective. The comments below represent this theme:

> *"During the course, I learned to set long-term and short-term goals, prioritise my goals, make a weekly plan, and adopt techniques for studying. Procrastination decreased with the technique I learnt—now I start tasks more briskly and finish things before the deadline. This is a big deal for me because it has reduced unnecessary stress associated with studying. It has also brought a feeling of success---The initial planning and filling in the weekly plan also contributed to the fact that you had to really think about what you are realistically capable of doing. The weekly plan helped me realise how fragmented my days were.*" (Student, WELLS course).
>
> *I learned a lot, especially about time management. The time management task made me reflect more deeply on how I use my time, as I could clearly see in black and white where my time actually goes. This deep reflection helped me start changing some deeply rooted habits for the better. Now, I'm better at setting aside time for my school assignments.* (Student, WELLS course).
>
> *"During the course, I learned about time management and procrastination. I learned that time management planning is successful with a time plan. It helps you prioritize tasks, because if you have a lot to do, you often do not know where to start. When it comes to setting goals, I learned that it's worth breaking them down into subgoals, which is helpful because it's easier to meet small subgoals than large and vague ones.*" (Student, TIMA course).

The fourth theme was *Values, Defusion and self-compassion*. During the course, students reflected on and identified their personal values and practiced acting in accordance with them. The students had learnt new aspects of thoughts – they had learnt that thoughts are not facts, and they had learnt to question their thoughts and confront them and they had learnt to manage with negative thoughts. Students also reported that during the courses they had learned to take a gentler and more compassionate attitude towards themselves and be less demanding of themselves. The comments below represent this theme:

> *"My important observation relates (which helps me also in situations other than learning) to observing your own thinking and above all, its differentiation from the self. Observing your own thoughts from a distance provides an incredibly important perspective and a distance to your own thoughts and thus opens up space for recognising your own thought errors and patterns.*" (Student, WELLS-course).
>
> *"The course made me reflect on my values and how I use my time. I realized I prioritize work and studying, even though my top values are well-being, my boyfriend, and my family.*" (Student, WELLS-course).
>
> *"I learned to be a bit more compassionate toward myself, as I realized that criticizing myself does not do any good.*" (Student, WELLS-course).
>
> *"Another important thing that was discussed in the course was distancing yourself from negative thoughts. Although I have heard before that you should not get attached to your thoughts, I only understood the importance of that advice when I realized how much one thought affects my life.*" (Student, TIMA course).

Next, we explored whether there were differences between the courses and the profiles regarding benefits (see Table 6). The results showed that in the WELLS course, students described more benefits regarding better well-being than students in the TIMA course, but the experienced benefits related to increased self-knowledge and self-reflection, improved studying, and time and effort management and values, defusion and self-compassion were mentioned equally frequently. However, students in the TIMA course more frequently reported that the course improved their time and effort management skills.

> *"In week four, we focused on observing our thoughts—and it really showed. I discovered a pile of thoughts so harsh it made me feel sick. I say things to myself that I would never say to another person. At*

TABLE 6 Distribution of the categories between different profiles.

	Better well-being	Increased self-knowledge and self-reflection	Improved studying and time management	Defusion and self-compassion
WELLS	16	17	15	11
LOLO	3	2	2	1
LFHO	3	5	1	0
HFLO	4	4	7	5
HH	6	6	5	5
TIMA	5	19	18	9
LOLO	0	5	5	2
LFHO	2	7	6	4
HFLO	3	7	7	3
HH	0	2	1	0

> *the same time, I realised that those thoughts were not truly mine—I was just repeating things that had been said to me year after year. Thoughts like 'I'm never good enough for anyone' or 'I'm stupid/useless/not enough' have been running through my head daily. Until now, they have been a fixed part of me—and I had not even realized it. But once I became aware of them, I also learned how to challenge them and practice self-compassion.*
>
> *I feel that this course has had a significant impact on my studies. It's amazing to notice how much I internalized in such a short time and how quickly change can happen. Studying does not have to be exhausting and draining—not even for me. Now that I've realised how harshly I talk to myself, I plan to keep observing my thoughts and correcting them when necessary.*
>
> *My overall exhaustion decreased and my stress levels dropped during the course, mainly because studying started to feel easier. It became easier to influence my own behavior when I understood which part of me was avoiding studying—and why. As a result, some of the stress also faded away.*" (Student, WELLS course).
>
> *"Previously, I have not made any kind of reading schedules for myself, not even for my matriculation examination, but I've "scheduled" according to my mood, so that I've often only started when I have to. Now I've started making more specific schedules and I've noticed that they help create a certain sense of certainty that I'll get the assignments done and the materials read on time. I've noticed that this also raises my self-esteem.*" (Student, TIMA course).

5 Discussion

The aim of this study was to compare two different kinds of study skills courses to gain an understanding of what kinds of students have applied for different study skills courses and whether students with different profiles based on their organized studying and psychological flexibility differ in the benefit they gain from these courses.

Students' ability to study in an organized manner improved in both courses, with no significant differences observed between them. This is in line with earlier studies, which show that time and effort management skills can be improved with training (Häfner et al., 2015). In addition, there were no differences between the courses in the changes in organized studying. This is interesting since the TIMA course focused mainly on improving time and effort management skills every week and in the WELLS course, students followed their time for a week at the beginning of the course and reflected on their time usage together with value-based reflection. Thus, the results of this study indicate that time and effort management skills can be improved by simply becoming aware of one's own time usage. This has also been shown in earlier studies (Häfner et al., 2015). In addition, it seems that time and effort management skills can be supported with reflection on one's own time usage and linking it to value-based thinking. One reason for this could be that psychological flexibility has been found to support time and effort management because it has been suggested that the process of psychological flexibility involves dedicating your time in daily life to actions that are important and based on your values (Kashdan and Rottenberg, 2010). Therefore, when time is allocated to facilitate value-based actions, it can enhance time and effort management and make it more meaningful (Sheldon et al., 2010).

The results of this study showed that in the WELLS course, psychological flexibility increased statistically significantly, but this was not the case in the TIMA course. The changes also differed from each other. WELLS is an ACT-based course which aimed to improve psychological flexibility and these kinds of interventions have been shown to improve psychological flexibility in earlier studies as well (Levin et al., 2017; Räsänen et al., 2016). It seems that introducing the psychological flexibility concept briefly with little practice is not enough to develop skills in psychological flexibility. Earlier studies have also shown that psychological flexibility skills development can take time (Hayes, 2019; Räsänen et al., 2016).

In this study four different profiles of students were found on the basis of their scores on psychological flexibility and on time and effort management skills at the beginning of their courses. The biggest profile was the LOLO profile (*low organized studying and low psychological flexibility*) which is not surprising as it is probable that students who struggle with their studies might also seek opportunities to improve their time and effort management and well-being skills more often. Earlier research has also found similar profiles concerning time and effort management and psychological flexibility (Asikainen and Katajavuori, 2021). Furthermore, at the

beginning of the course, students in the TIMA course had lower scores both in organized studying and in psychological flexibility than in the WELLS course. This might be due to the fact that the TIMA course was advertised especially for students who experience challenges in their time and effort management, whereas the WELLS course was advertised as a course which improves students' well-being. Therefore, the WELLS course might appeal to a wider number of students who do not necessarily struggle with their studies but want to improve their well-being.

There were also differences between the profiles in changes in psychological flexibility and organized studying in the two courses. In the TIMA course, those students who assessed their psychological flexibility and organized studying skills to be low at the beginning of the course (LOLO group) increased their psychological flexibility, whereas students who rated their organized studying skills low and psychological flexibility as high at the beginning of the course (HFLO, *high flexibility and low organized studying*), showed a decrease in their psychological flexibility score. This might be due to the fact that as their awareness of psychological flexibility increased, they rated their own ability more realistically at the end of the course. The influence of increased awareness on a decrease in one's ability or self-evaluation has also been shown in other studies (Postareff et al., 2008). In the WELLS course, these differences did not occur, as in this course the students had time to practice their skills in psychological flexibility during the whole eight-week course. Studies have shown that practicing psychological flexibility can be a long process and it can take time for improvement to show (Räsänen et al., 2016). Furthermore, in the TIMA course in the LFHO profile (*low flexibility and high organized studying*), the change in organized studying was not as big as in other profiles (LOLO, HFLO). In the WELLS course, similar differences were found, as profiles with high organized studying differed from those with low organized studying. This difference is most likely due to the already higher score in organized studying. Earlier research has also shown that students with low time management skills can benefit from this kind of training (Häfner et al., 2015; Nadinloyi et al., 2013).

The results of this study showed that students experienced several benefits in both courses. Students in both courses reported better well-being, improved studying and time and effort management, better self-knowledge and reflection, as well as learning defusion skills and self-compassion towards themselves. Earlier research concerning ACT-based courses have found similar results (Asikainen et al., 2019; Hailikari et al., 2021). Time and effort management trainings also have been shown to improve time management and well-being (Aeon et al., 2021; Häfner et al., 2015; Häfner and Stock, 2010; Nadinloyi et al., 2013). In addition, increasing consciousness is the first step towards a change in behavior (Prochaska and DiClemente, 1983), and this too is an interesting finding. Although different benefits were experienced in both courses, there was a slight difference in the experienced improvement of well-being as students in the WELLS course reported improved well-being more than students in the TIMA course. Although research has reported an influence in well-being as a result of both psychological flexibility (Hayes et al., 2006; Kashdan and Rottenberg, 2010) and time and effort management (Aeon et al., 2021; Häfner et al., 2015), the results of this study indicate that students in the WELLS course, which also included practicing skills in psychological flexibility, experienced more benefits in their well-being.

6 Limitations

This study has several limitations. First, the number of participants was rather low, which reduces the generalizability of the analysis. For instance, the number of students in various clusters was small, and in certain instances, too low for analysis, thus the results should be interpreted cautiously. However, different courses were explored, and interesting results were produced from both courses. Another significant limitation of the study was that it relied entirely on self-reported data. This implies that the measurements were based on the students' own perceptions of these variables. Nevertheless, the questionnaires used were validated and have been established as reliable in measuring/quantifying these constructs. A further limitation of this study was that we measured only psychological flexibility and organized studying with no other scales. Future research could focus on carrying out quantitative analyses on how time management and psychological flexibility affect well-being or studying and how large the effects may be. On the other hand, a strength of the current study was that we analysed students' experiences qualitatively and the results of qualitative analysis gave indications of the benefits of the courses. Furthermore, a limitation of this study is the lack of information on the extent of additional academic pressure participants may have experienced concurrently with this course. The course took place towards the end of the year, a period when students may face increased workload due to their autumn studies. Additionally, we do not have data on other mental health services the participants may have utilized during the course, nor can we determine whether such additional support measures may have had a positive impact during the course period.

6.1 Practical implications and future studies

The findings of this study have several practical implications for higher education institutions and for the design and implementation of study skills courses. Our results highlight the importance of supporting both cognitive self-regulation—particularly time and effort management—and emotional self-regulation, such as practicing psychological flexibility skills, during higher education studies. Both study skills courses, WELLS and TIMA, demonstrated effectiveness in improving organized studying, suggesting that a variety of pedagogical approaches can be employed to achieve similar outcomes. Time and effort management skills can be strengthened by monitoring and reflecting on one's time use, as demonstrated in our study. Monitoring one's time use can enhance metacognitive awareness of one's competencies and study behaviors, thereby enabling more intentional and adaptive regulation of one's actions (Zimmerman, 2002; Claessens et al., 2007). Furthermore, our findings underscore the critical role of clear instructional structures, goal setting and formulation, as well as scaffolding of goal-directed behavior, as suggested by Boekaerts and Pekrun (2015).

However, the distinct impact on psychological flexibility between the courses suggests that incorporating components of psychological flexibility—such as strategies for managing one's thoughts and value-based action—can enhance students' well-being. This is an important consideration for universities and course designers. Our study thus reinforces the need to support students' emotional regulation throughout their studies. By promoting constructive emotion regulation strategies and offering targeted programs to develop them,

educators can better support students in their learning processes (Boekaerts and Pekrun, 2015).

The identification of distinct student profiles and their varied responses to the courses highlights the need for recognizing the variety of students' needs. Tailoring courses to address the specific needs of different student profiles could enhance their effectiveness, ensuring that all students would gain maximum benefit. In the beginning of study skills courses it could be considered initial assessments to identify student profiles and subsequently customize course content and support accordingly. New technology and various AI tools could be implemented to support students' varying needs (Ravšelj et al., 2025).

Future research should continue to explore the differential impacts of study skills courses on diverse student populations across different disciplines and among international student populations. Longitudinal studies could provide insights into the long-term effects of such interventions on academic performance and psychological well-being as well as in exploring the lasting effects of psychological flexibility training. Additionally, further investigation into the mechanisms underlying the observed differences in psychological flexibility and organized studying across student profiles could inform the development of more targeted and effective interventions. Research could also examine the impact of integrating face-to-face and online training into similar interventions, as well as embedding technology and emerging AI tools into study skills courses, as these resources may offer new opportunities for personalized learning and reflection (Ravšelj et al., 2025).

In conclusion, this study contributes to the growing body of literature on study skills interventions by highlighting the importance of considering both cognitive regulation –like time management skills, and emotional regulation – like psychological flexibility - in course design. By recognizing the diverse needs of students and tailoring interventions accordingly, university educators can enhance the effectiveness of study skills courses and support students in developing the skills necessary for academic success and well-being.

7 Conclusion

In conclusion, this study contributes to the growing body of literature on study skills interventions by highlighting the importance of considering both cognitive regulation –like time management skills, and emotional regulation – like psychological flexibility - in course design. This study showed that both time management training and psychological flexibility training can have multiple benefits for students. Based on the results, it is suggested that simply making students aware of their time usage can have an effect on their time management skills. These kinds of assignments could be easily implemented as part of university courses. Further, by recognizing the diverse needs of students and tailoring interventions accordingly, university educators can enhance the effectiveness of study skills courses and support students in developing the skills necessary for academic success and well-being. In addition, the importance of psychological flexibility in university studies should also be taken into account. It would seem that combining time management with ACT-based training can influence students studying and time management as well as their well-being and self-compassion. Implementing ACT-based training in university studies have been found to have multiple positive influences on student learning and well-being (Asikainen et al., 2019; Asikainen and Katajavuori, 2021).

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

This study was conducted in accordance with Finnish legislation, and in this kind of study, ethical approval is not needed according to legislation. We followed strictly the guidelines of TENK https://tenk.fi/en which is required in this kind of research in Finland. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

NK: Conceptualization, Formal analysis, Investigation, Methodology, Writing – original draft. TH: Conceptualization, Formal analysis, Investigation, Methodology, Writing – review & editing. HA: Conceptualization, Formal analysis, Investigation, Methodology, Writing – review & editing.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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