

RGC Ref. No.: UGC/FDS15/H03/16 <p>(please insert ref. above)</p>
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**RESEARCH GRANTS COUNCIL
COMPETITIVE RESEARCH FUNDING SCHEMES FOR
THE LOCAL SELF-FINANCING DEGREE SECTOR**

FACULTY DEVELOPMENT SCHEME (FDS)

Completion Report
(for completed projects only)

<p><u>Submission Deadlines:</u></p> <ol style="list-style-type: none"> 1. Auditor's report with unspent balance, if any: within <u>six</u> months of the approved project completion date. 2. Completion report: within <u>12</u> months of the approved project completion date.
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Part A: The Project and Investigator(s)

1. Project Title

Exploring how self-control training improves self-control performance:

An experience sampling study.

2. Investigator(s) and Academic Department(s) / Unit(s) Involved

Research Team	Name / Post	Unit / Department / Institution
Principal Investigator	Dr. Tak-sang Chow/Assistant Professor	Department of Counseling and Psychology/Hong Kong Shue Yan University
Co-Investigator(s)	Dr Chin-ming Hui/Assistant Professor	Department of Psychology/The Chinese University of Hong Kong
Others	NA	NA

3. Project Duration

	Original	Revised	Date of RGC / Institution Approval (must be quoted)
Project Start Date	1/1/2017	NA	NA
Project Completion Date	30/6/2018	31/12/2018	10/5/2018
Duration (in month)	18	24	10/5/2018
Deadline for Submission of Completion Report	30/06/2019	31/12/2019	NA

Part B: The Final Report**5. Project Objectives****5.1 Objectives as per original application**

- 1. To test the effect of self-control training (repeated practice of small acts of self-control) on everyday experiences of self-control conflicts*
- 2. To examine the psychological processes underlying improvement of self-control following self-control training*
- 3. To examine the incremental effect of a goal-setting component in self-control training*

5.2 Revised objectives

Date of approval from the RGC: N.A.

Reasons for the change: N.A.

N.A.

1.

2.

3.

5.3 Realisation of the objectives

(Maximum 1 page; please state how and to what extent the project objectives have been achieved; give reasons for under-achievements and outline attempts to overcome problems, if any)

We have run the experience sampling study as planned and fully achieved all of the following project objectives. Below are the particulars:

Objective 1: To test the effect of self-control training (the repeated practice of small acts of self-control) on everyday experiences of self-control conflicts:

We have compared the effects of a) monitoring only, b) standard self-control training and c) training with progressive goal conditions on daily life self-control experiences, which were measured by experience sampling surveys. All experimental conditions targeted at the same behavior during the three-week training phase. To measure daily life self-control experiences, participants completed five random surveys per day in three one-week measurement phases, one before (i.e., the pre-training phase), one immediately after (i.e., the post-training phase), and four weeks after the training (i.e., the follow-up phase). The collected data had a two-level structure with 4,913 episodes of daily life self-control conflicts nested with 115 individuals. The hypothesized beneficial effect of the standard training (i.e. the repeated practice of small acts of self-control) would be supported if this condition resulted in better performance in untrained, everyday self-control behaviors. We found that all experimental conditions improved the targeted behavior, but the standard training condition did not outperform the baseline, monitoring only condition. Importantly, the standard training condition did not improve the untrained self-control behaviors. Thus, our hypothesis on the effect of the standard training condition was not strongly supported.

Objective 2: To examine the psychological processes underlying improvement of self-control following self-control training

To examine the psychological processes underlying the effect of self-control training, process variables such as self-efficacy, mental fatigue and perceived value were included in the experience sampling measures. Multilevel moderated mediation analysis was conducted to test if the dummy variables of conditions moderated the mediation effects of the process variables in the association between the dummy variable of phases and self-control success. To our surprise, we found that the baseline, monitoring only condition increased self-efficacy, which in turn improved self-control in daily life. This mediation effect was not found in the other two conditions. Although the present findings stand in contrast to our hypothesis about group differences, it suggested that self-efficacy is an important process underlying self-control improvement.

Objective 3: To examine the incremental effect of a goal-setting component in self-control training

As compared with the standard training condition which did not provide clear goals for the three-week training period, the training with progressive goal condition instructed participants to set specific, progressive goals for each week of training (30% - 40% - 50% reduction). The incremental effect of a goal-setting component would be supported if the training with progressive goal condition resulted in more successful daily life self-control than the other two conditions. Nevertheless, as stated in *Objective 2*, the monitoring only condition resulted in better performance in untrained behaviors than the other two conditions. The training with

progressive goal condition did not differ significantly with the standard training condition. Therefore, the hypothesized incremental effect was not supported.

To summarize, we have addressed all of our hypotheses with the planned experience sampling study. The effect of the repeated practice of self-control (i.e. the standard training) was not robust. Moreover, the monitoring only condition improved self-control in untrained domains and the effect was mediated by self-efficacy. A thorough analysis of this finding was discussed in a manuscript that is currently under review.

5.4 Summary of objectives addressed to date

Objectives <i>(as per 5.1/5.2 above)</i>	Addressed <i>(please tick)</i>	Percentage Achieved <i>(please estimate)</i>
1. To test the effect of self-control training (the repeated practice of small acts of self-control) on everyday experiences of self-control conflicts	✓	100%
2. To examine the psychological processes underlying improvement of self-control following self-control training	✓	100%
3. To examine the incremental effect of a goal-setting component in self-control training	✓	100%

6. Research Outcome

6.1 Major findings and research outcome

(Maximum 1 page; please make reference to Part C where necessary)

The past findings suggested that repeatedly practicing small acts of self-control improved self-control performance in untrained domains, the major goal of the present study was to evaluate the effectiveness of self-control training with three general refinements. First, our study included three phases of experience sampling (pre-training, post-training and, follow-up). While the pre-training assessment could serve as a baseline and substantially improve the statistical power, the follow-up assessment allowed us to test whether the benefits of the training endure four weeks after the training. Also, all training targeted the same self-control behavior, so that we could evaluate the effect of conditions on both trained (reduction of the targeted behavior) and untrained self-control domains (other daily life self-control behavior as measured by experience sampling surveys).

With this more rigorous design, the present investigation found that all conditions improved the targeted behavior. However, the standard training condition did not outperform the baseline, monitoring only condition. To our surprise, the monitoring only condition resulted in better performance in untrained daily life self-control behaviors and the effect was mediated by self-efficacy. The effect was even found at a one-month follow-up. In contrast, both the

standard training procedure and a modified version which included progressive goal setting did not improve untrained self-control domains. These findings stand in contrast to our hypotheses. It does not only challenge the existing literature of self-control training but also provides information about the psychological processes underlying self-control improvement. This finding is discussed in a manuscript submitted to the *British Journal of Psychology* (Attn 1).

In addition to the training effect, we also used the in-take data (personality measures and the first phase of experience sampling) to explore a few hypotheses about self-control improvement. For instance, we examined whether autonomous self-control improved self-control performance by increasing the self-efficacy and perceived value of self-control. The multilevel (1-1-1) mediation analysis using the pre-training experience sampling data supported this hypothesis. Although the beneficial effect of autonomous motivation is well-documented, little is known about its psychological processes. This finding addressed this gap. A detailed discussion of this finding is written as a manuscript submitted to the *British Journal of Social Psychology* (Attn 2).

Also, we tested whether trait level self-compassion moderated the effect of mental fatigue on self-control performance and whether this effect was mediated by self-efficacy. Trait self-compassion was measured at the in-take survey. We found that for people who are self-compassionate, mental fatigue increases, rather than undermines, self-efficacy, which in turn improves daily life self-control performance. It appears that self-compassionate people interpret mental fatigue as a sign of deep engagement and progress. This preliminary finding further illuminates when and how self-compassion facilitates self-control. This finding is discussed in a manuscript submitted to *Mindfulness* (Attn 2).

6.2 Potential for further development of the research and the proposed course of action (Maximum half a page)

We have two major research directions:

1. Contrary to our predictions, our study did not find a significant effect of the standard self-control training procedure in daily life self-control experiences. Indeed, both the standard training and the modified version which included progressive goal setting did not outperform the baseline self-monitoring condition. To further clarify the relative effectiveness of different self-control interventions, we will try to compare the standard self-control training with other forms of self-control interventions (e.g. situational modifications) and further explore personality moderators to see if there is a treatment-person interaction. In our future research, we will compare situational modification strategies (i.e. teaching participants to change or avoid situations in a way that reduce the frequency of self-control conflicts) and the standard training paradigm (i.e. asking participants to practice inhibition) and see if they benefit people with different motivation (e.g. different readiness to change) and different personalities (e.g. trait self-control).
2. When we took a closer look at the pre-training experience sampling survey, we found that autonomous motivation improves self-control performance by increasing self-efficacy and the perceived value of self-control. However, we could not fully establish the causal relationship with the experience sampling data alone. In future studies we will a) measure trait level autonomy and b) experimentally manipulate perceived autonomy of self-control to further examine the causal model.

7. Layman's Summary

(Describe in layman's language the nature, significance and value of the research project, in no more than 200 words)

Since self-control plays a pivotal role in well-being, investigating how to improve self-control is a worthy endeavor. Past studies suggested that self-control training (asking people to repeatedly practice a small act of self-control) improves self-control. However, there are a few methodological issues in past studies. The present study aimed to provide a more rigorous test of the training effect with some methodological refinements. For instance, we included both pretest, posttest and one-month follow-up to assess the change in self-control performance. We found that the self-monitoring condition, in which participants were asked to keep a logbook of the targeted behavior, improved self-control more than the self-control training and another condition that asked participants to set specific goals for training. The present findings stand in contrast to the existing literature and raised the question of whether repeatedly practicing self-control helps to improve self-control in daily life. Taken a broader perspective, the present study highlights the importance of comparing different self-control interventions and understanding the ingredients that are responsible for the observed effect in past studies.

Part C: Research Output**8. Peer-Reviewed Journal Publication(s) Arising Directly From This Research Project**

(Please attach a copy of the publication and/or the letter of acceptance if not yet submitted in the previous progress report(s). All listed publications must acknowledge RGC's funding support by quoting the specific grant reference.)

The Latest Status of Publications				Author(s) (denote the corresponding author with an asterisk*)	Title and Journal / Book (with the volume, pages and other necessary publishing details specified)	Submitted to RGC (indicate the year ending of the relevant progress report)	Attached to this Report (Yes or No)	Acknowledged the Support of RGC (Yes or No)	Accessible from the Institutional Repository (Yes or No)
Year of Publication	Year of Acceptance (For paper accepted but not yet published)	Under Review	Under Preparation (optional)						
		✓ (Attn 1)		Tak-sang Chow* and Chin-Ming Hui	Self-control training on social media use: An experience sampling study. British Journal of Psychology (under review)	NA	Yes	Yes	No
		✓ (Attn 2)		Tak-sang Chow*, Chin-Ming Hui and Jacky Chi-kit Ng	Psychological processes underlying autonomous self-control: An experience sampling study. British Journal of Social Psychology (under review)	NA	Yes	Yes	No
		✓ (Attn 3)		Tak-sang Chow* and Chin-ming Hui	How does trait self-compassion benefit self-control in daily life? Testing a multilevel moderated mediation model. Mindfulness (under review)	NA	Yes	Yes	No
			✓	Tak-sang Chow and Chin-ming Hui	Social media, self-control and psychological well-being	NA	No	No	No

9. Recognized International Conference(s) In Which Paper(s) Related To This Research Project Was / Were Delivered

(Please attach a copy of each conference abstract)

Month / Year / Place	Title	Conference Name	Submitted to RGC (indicate the year ending of the relevant progress report)	Attached to this Report (Yes or No)	Acknowledged the Support of RGC (Yes or No)	Accessible from the Institutional Repository (Yes or No)
June/ 2018/ Budapest	Improving self-control and subjective well-being by a three-week self-control training program: An experience sampling study (Attn 4)	9 th European Conference on Positive Psychology	No	Yes	Yes	No
May/ 2018/ San Francisco	Individual differences in everyday self-control conflicts: An experience sampling study (Attn 5 and 6)	30 th Annual Convention of the Association of Psychological Science	No	Yes	Yes	No

10. Whether Research Experience And New Knowledge Has Been Transferred / Has Contributed To Teaching And Learning

(Please elaborate)

To account for the hierarchical structure of the experience sampling data in this project, I acquired the skill of multilevel modeling using Mplus. Since our institution has obtained this software under the support of a previous IDS scheme (UGCIDS15/14), I have incorporated the topic of modeling multilevel data in experience sampling study as well as designing an experience sampling study in the advanced research method course of our Doctor of Counseling Psychology program.

11. Student(s) Trained*(Please attach a copy of the title page of the thesis)*

Name	Degree Registered for	Date of Registration	Date of Thesis Submission / Graduation
	BSSc	2014-09-01	2018-04-15 (Attn 7)
	BSSc	2014-09-01	2018-04-15 (Attn 8)

12. Other Impact*(e.g. award of patents or prizes, collaboration with other research institutions, technology transfer, teaching enhancement, etc.)*

NA

13. Statistics on Research Outputs

	Peer-reviewed Journal Publications	Conference Papers	Scholarly Books, Monographs and Chapters	Patents Awarded	Other Research Outputs (please specify)	
No. of outputs arising directly from this research project	Three papers have been submitted to peer-review journals and one is under preparation	2	0	0	Type	No.
					N.A.	N.A.

14. Public Access Of Completion Report

(Please specify the information, if any, that cannot be provided for public access and give the reasons.)

Information that Cannot Be Provided for Public Access	Reasons
N.A.	N.A.