



## **Supplementary decision by the Executive Board**

### **Regarding the Advisory Opinion dated 2 August 2021, case number 20-02 and the Advisory Opinion dated 21 April 2022, case number 20-02/C2b**

Taking into account the new developments regarding the requests to retract the seven articles assessed, marked in red, and the supplementary advice of the Leiden University Committee for Academic Integrity dated 21 April 2022 (case number CWI 20-02/C2b), the Leiden University Executive Board (hereafter: “the Board”) decided, in the meeting of 17 May 2022, as follows:

The Board amends the earlier decision dated 12 November 2021 (case number CWI 20-02) as follows:

- A. The authors/co-authors involved and the publisher of the articles numbered internally 97, 98, 129, 139 and 144 will be advised of the re-assessment by the Committee.**
- B. In the case of the article numbered internally 129, it is important to establish that – contrary to what was determined previously - the reassessment found no indication of malpractice that may have had an influence on the results and conclusions of the article.**
- C. In the case of the article numbered internally 139, evidence of malpractice has been established, whereby it has now been determined that there is reason to retract the article, rather than issue a corrigendum. The Board will request that this article be retracted.**
- D. Given that a period of six months has passed since the request for retraction was made to the publishers and as there is now no doubt as to the correctness of the Committee’s finding of malpractice, the Board, in the interest of the integrity of science, will make the seven articles that were previously judged as *red* by the Committee publicly known, with full acknowledgement of the source. See paragraph III.**

The manner in which this decision was reached is explained below.

#### **I. Circumstances and course of events**

In its decision of 12 November 2021, the Board established that the follow-up study by the Leiden University Committee for Academic Integrity (hereafter: “the Committee”)



concentrated on safeguarding the ‘technical’ integrity of the articles by [REDACTED] (hereafter: “the defendant”) during the period she was employed by Leiden University. Out of 174 articles, a total of 53 were selected. For the method of investigation and selection used by the Committee, please refer to the advice in file CWI 2020-02.

In this follow-up study, the Committee has established malpractices relating to a total of 15 articles. In carrying out the study, the Committee has expressly not established whether the defendant or other authors or co-authors have committed infringements of academic integrity, as established in the Netherlands Code of Conduct on Academic Integrity (2018) and the Leiden University Complaints Procedure for Academic Integrity.

On 12 November 2021, the defendant and co-authors were notified of the malpractices found and were informed that the publishers would be notified.

On 15 November 2021, the publishers were informed of the malpractices identified and – where applicable – were requested to retract the articles. The Board also informed the publishers that further information relating to the underlying data on which the Committee based its findings and conclusions could be requested from the Secretary of the Committee.

On 5 April 2022, the Executive Board established that, as a result of notifications received from co-authors concerning the advisory opinion by the Committee (CWI 2020-02), further examination by the Committee was necessary.

Regarding the requests to retract the seven articles that were assessed by the Committee as red, a reminder was sent to the publishers concerned on 12 April 2022. The Board informed the publishers that – given the expiry of the period since the decision of 12 November 2021 – they would proceed to disclose the titles and authors of the articles if no decision was taken to retract the articles by 1 May 2022.

In a letter of 12 April 2022, the authors and co-authors concerned were also given the opportunity to respond to the Board’s statement that, if no decision was taken by 1 May 2022 to retract the articles, the Board would feel compelled to make the titles of the articles and the names of the authors and co-authors publicly known.

Following the letter dated 12 April 2022, the majority of the authors involved agreed to the public disclosure of the articles. Authors C. Beste, L. Colzato, B. Hommel and A-K. Stock informed the Board that they did not agree to the disclosure of the titles of the articles. They consider the Committee’s investigation to have been negligent because, in summary, they were not involved or not sufficiently involved in the investigation and the Committee did not answer the question of guilt.

On 7 April 2022, the Board instructed the Committee to investigate the notifications received by the Board concerning ambiguities with regard to the research data and conclusions of the



authors and co-authors stated in the advisory opinion dated 11 November 2019 (CWI 2019-01).

This relates to the following articles:

1. **Internal number 97;**
2. **Internal number 98;**
3. **Internal number 129; and**
4. **Internal number 139.**

During the investigation by the Committee, a further notification was received relating to article:

5. **Internal number 144.**

On 21 April 2022, the Committee issued a new advisory opinion, case number CWI 20-02/C2b, relating to the re-assessment of these five articles, in relation to the earlier advisory opinion by the CWI in the dossiers under case number CWI 2019-01 (advisory opinion dated 11 November 2019) and case number CWI 2020-02 (advisory opinion dated 2 August 2021).

On 26 April 2022, the Board adopted the recommendations included in the advisory opinion dated 21 April 2022 under case number 2020-02/C2b.

## II. Supplementary advice

The Board refers first to the content of the advisory opinion dated 21 April 2021 under case number 2020-02/C2b (attached).

### 1 and 2. Articles numbered internally 97 and 98

For the reassessment, the Board refers to the attached advisory opinion from the Committee, and adopts the Committee's conclusions and advice. The publisher of the journal *Consciousness & Cognition*, in which the relevant articles are published, has since confirmed to the Board that these articles will be retracted. See further under paragraph III.

### 3. Article numbered internally 129

For the content of the reassessment, the Board refers to the attached advisory opinion of the Committee. In the case of the article numbered internally 129, it is important to state that this reassessment did not reveal any malpractice that affected the results and conclusions of the article. A corrigendum was wrongly requested from the publisher. The Committee has therefore revised the earlier opinion and indicated that no action (read: by the publisher) is required.



#### 4. Article numbered internally 139

For the content of the reassessment, the Board refers to the attached advisory opinion of the Committee. In the case of the article numbered internally 139, there is still evidence of malpractice, where the Committee judges that there are grounds for retraction of the article (marked as *red*), not just a corrigendum. The Board will therefore request the publisher to retract the article.

#### 5. Article numbered internally 144

For the content of the reassessment, the Board refers to the attached advisory opinion of the Committee. The authors and co-authors involved and the publisher of the article numbered internally 144 will be informed of the reassessment by the Committee. The reassessment has established that the Committee interpreted the available datasets differently. However, the Committee's conclusion regarding the malpractice found remains valid. The Board's request to the publisher to investigate the malpractice in order to retract or correct it remains valid.

### **III. Requests for retraction**

Given that a period of almost six months has passed since the announcement of the decision dated 12 November 2021 and the Board's request dated 15 November 2021 to the publishers for retraction of the seven articles assessed as *red*, the Board considers it necessary to disclose the seven articles publicly with full acknowledgement of the source and the conclusion of the Committee concerning the malpractices found. In this respect, the Board considers the following:

The Board wishes to point out that the purpose of the follow-up investigation was to safeguard the 'technical' integrity of the articles. This follow-up investigation did not involve an assessment of the violation of scientific integrity and did not therefore determine who was guilty of the malpractices found. In view of the seriousness of the malpractices identified in the seven articles assessed by the Committee as *red*, the Board considers it extremely important that the articles in question be retracted, so that the integrity of the scientific literature can be safeguarded.

The publishers involved have been given the opportunity to request the information necessary to carry out their independent investigation. All authors have also been informed of the findings. To date, no concrete evidence has been provided by the publishers or authors/co-authors to question the Committee's conclusions with regard to these seven articles. Following the re-evaluation of the articles numbered internally 97 and 98, the conclusions with regard to these two articles remain valid

The Board therefore concludes that the complete investigation by the Committee was meticulous. The Board has no reason to doubt the Committee's findings, which only relate to establishing factual inadequacies.





The importance of the integrity of academic literature outweighs the importance of answering the question of guilt. The Board also considers it important that the disclosure of the articles where malpractice has been identified with full acknowledgement of the source will create clarity in the academic community, as a result of which the integrity of other related articles is not in question. In view of the above, the objections voiced by the authors and co-authors Beste, Colzato, Hommel and Stock against the disclosure of the titles of the articles and consequently the names of the authors are not justified.

The Board is pleased that the publishers have now acceded to the request to retract five of the seven articles. After the reminder was sent on 12 April 2022, the publishers of the remaining two articles assessed as *red* also informed the Board that an independent investigation had been launched and that they would inform the Board of the outcome as soon as possible. The Board greatly appreciates the publishers' cooperation in promoting scientific integrity and 'sound' scientific literature. As soon as they are known, the final decisions of the publishers concerned regarding retraction will be published on the university website by means of a reference.

In so far as the responsibility for the malpractices encountered has not been established by the publisher(s) in the internal investigation, the Board assumes that the authors involved are jointly responsible. In this respect, the Board wishes to point out that the previous investigation (case number: CWI 2019-01) revealed a pattern in which students and young university staff, in a subordinate and dependent relationship with the defendant, involuntarily became involved in research misconduct.

In view of the above, the following are the seven articles with full acknowledgement of the source and the Committee's assessment or reassessment of malpractice.

With regard to the following articles, the publisher has confirmed that the articles will be retracted:

1. Sellaro R, Hommel B, de Kwaadsteniet EW, van de Groep SW, Colzato L. *Increasing interpersonal trust through divergent thinking*. Front Psychol 2014; e561 (internal number: 89)

The Committee's judgement: 21 test subjects have been withdrawn, which as a group did not demonstrate any positive association, and there is a major discrepancy between the number of test subjects described in the article and the number of individuals actually tested (40 vs 61).

Link to the publisher to follow.

2. Colzato L, Sellaro R, Samara I, Baas M, Hommel B. *Meditation-induced states predict attentional control over time*. Conscious Cogn 2015; 37: 57-62 (internal number: 97)

Reassessment by the Committee:



There are a large number of different datasets, including eDAT files and SPSS files, from which it can be concluded that subjects for whom measurements were taken were omitted from the analyses and reports. The article reports results from 40 subjects, while previous files from the 'within-subjects' analysis contain 46. In addition, the ANOVA test is incorrect and incorrectly applied. It is stated that individuals were randomised across the two conditions, implying that the exclusion occurred after randomisation, which should always be reported.

However, the change in the research design is more critical than the exact number of subjects omitted. The research was designed and conducted as a 'within-subject' (cross-over) study, with two measurements per person. The article presents a 'between-subjects' analysis, i.e., only the first measurement for each subject, and does not mention the omitted second measurement. A control group was then added. The first, substantial post hoc change, is not reported. So, during the course of the study, the research design was modified twice in relation to the protocol, and it is not implausible that this was done on the basis of the results, i.e., from a comparison of two measurements in one subject to comparisons between subjects.

From a methodological point of view, a 'within-subject' comparison is considerably stronger than a 'between-subject' comparison, since in the former case coincidental differences between subjects do not play a role. With this in mind, it is reasonable to assume that deliberate manipulation took place.

Link to the publisher to follow.

3. Colzato L, Sellaro R, Samara I, Hommel B. *Meditation-induced cognitive control states regulate response-conflict adaptation: Evidence from trial-to-trial adjustments in the Simon task*. *Conscious Cogn* 2015; 35: 110-114 (internal number: 98)

Reassessment by the Committee:

The article reports 36 subjects randomised across two – again, exactly equal – groups of 18 subjects. There are a number of datasets with different numbers of subjects, in all cases more than reported (e.g., n=54 and n=43). Both the eDAT files and an Excel file contain 25 individuals who were exposed to both conditions. The article states that individuals were randomised across the two conditions, implying that subjects were omitted after randomisation. This must always be reported, which is not the case here.

However, the change in the research design is the more critical issue. The research was designed and conducted as a 'within-subject' (cross-over) study, with two measurements per person. According to the data files, two measurements were carried out on (at least) 25 subjects. The article presents a 'between-subjects' analysis, and this significant post hoc change is not reported. It is not implausible that this was done on the basis of the results, i.e., from a comparison of two measurements in one subject to comparisons between subjects. From a methodological point of view, a 'within-subject' comparison is considerably stronger than a 'between-subject' comparison, since in the former case coincidental differences between



subjects do not play a role. With this in mind, it is reasonable to assume that deliberate manipulation took place.

Link to the publisher to follow.

4. Jongkees B, Sellaro R, Beste C, Nitsche MA, Kühn S, Colzato L. *L-Tyrosine administration modulates the effect of transcranial direct current stimulation on working memory in healthy humans*. Cortex 2017; 90:103-114 (internal number: 154)

Judgement by the Committee: Data from two groups examined, showing a different result from expected, have been omitted from the publication. A minimum of 49 test subjects have been omitted.

Link to the publisher to follow.

5. Steenbergen L, Sellaro R, Stock A-K, Beste C, Colzato L. *γ-Aminobutyric acid (GABA) administration improves action selection processes: A randomised controlled trial*. Sci Rep 2015; 5:e12770 (internal number: 120)

Judgement by the Committee: 16 test subjects have been omitted.

Link to the publisher to follow.

B. The publisher has confirmed that the internal examination of the following articles is in progress.

1. Steenbergen L, Sellaro R, Stock A-K, Verkuil B, Beste C, Colzato L. *Transcutaneous vagus nerve stimulation (tVNS) enhances response selection during action cascading processes*. Eur Neuropsychopharmacol 2015; 25: 773-778 (internal number: 121)

Judgement by the Committee: 16 test subjects, who are described in one of the files as the “best 30 subjects”, have been omitted. Moreover the cross-over design has not been adhered to.

2. Colzato L, Szapora A, Lippelt D, Hommel B. *Prior meditation practice modulates performance and strategy use in convergent- and divergent-thinking problems*. Mindfulness 2017; 8: 10-16 (internal number: 145)

Judgement by the Committee: Twelve test subjects were omitted from the published article.



#### IV. Conclusion

In view of the above, there is reason to amend the earlier decision dated 12 November 2021 as follows:

- A. The authors and co-authors concerned and the publisher of the articles numbered internally 97, 98, 129, 139 and 144 will be informed of the Committee's reassessment.
- B. In the case of the article numbered internally 129, it is important to note that the reassessment revealed that - contrary to what was established earlier - there was no malpractice that affected the results and conclusions of the article.
- C. In the case of the article numbered internally 139, it has been established that this is still a case of malpractice and it has now been judged that there are grounds for retraction rather than just a corrigendum. The Board will ask for the article to be retracted.
- D. Given that a period of six months has passed since the request for retraction was made to the publishers and since there is no doubt as to the veracity of the malpractices identified by the Committee, the Board will, in the interests of the integrity of science, disclose the titles of the seven articles, which were previously judged to be *red* by the Committee, with full acknowledgement of the source.

The above supplementary decision will be published on the University website (partially anonymised).

Leiden, 17 May 2022