

# Reflective practicum in the process of training students as a mobilizing factor of personal development and subjective well-being in conditions of information uncertainty and emotional challenges

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## ABSTRACT

**Aim:** Using time-delayed reflection of the day's events, to determine what worries students the most and is perceived by them as informational uncertainty and emotional challenges that negatively affect their health and learning outcomes. Develop and experimentally test in the educational process of higher education institutions the effectiveness of reflective practicum on the gradual transformation of traumatic stress into a mobilizing factor of personal development and subjective well-being in conditions of informational uncertainty and emotional challenges.

**Materials and Methods:** 1,500 future specialists who studied at the Borys Grinchenko Kyiv Metropolitan University and the Bogomolets National Medical University during the war were involved in the experimental work.

**Results:** Students associate informational uncertainty and emotional challenges with what is happening in the country (the full-scale invasion of Russian troops into Ukraine has been ongoing for the third year), at work (students combine work with study), as well as during study, in the store, in transport, etc. Students react differently to informational uncertainty and emotional challenges that occur anywhere during the day. 2% of respondents did not feel any changes in their body. The rest of the respondents felt unpleasant changes: 98% headache, 80.2% – increased blood pressure, 78.8% – increased heartbeat, 45.6% – stomach discomfort, 39.4% – body chills, 22.2% – facial redness, 20.8% – body sweating, 12.6% – muscle stiffness, 8.4% – palm sweating, 6.2% – ringing in the ears, 5.6% – decreased blood pressure, 4.2% – darkening in the eyes, 1% – hand tremors. Ignoring these conditions during study reduces the effectiveness of study, since students quickly transition from the process of tension to the process of fatigue.

**Conclusions:** In order to restore the optimally appropriate course of tension and fatigue processes in students, it is necessary to: 1) find out the duration of these processes; 2) determine factors that cause states of uncertainty and depression mood; 3) conduct five-minute reflective practicum at the beginning of practical and seminar classes, which train in the implementation of reflection, when the identified factors act as its objects; 4) practice the gradual transformation of traumatic stress into a mobilizing factor of personal development and subjective well-being in conditions of information uncertainty and emotional challenges.

**KEY WORDS:** stress, tension, uncertainty, depression mood, subjective well-being, time-delayed reflection

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## INTRODUCTION

In this article, the term “stress” refers to a wide range of states of students that arise as a response to various extreme influences, actions, uncertainty, and challenges. Since among the various states, students can most often experience states of informational and (or) emotional stress, we focused on situations of informational uncertainty and situations that are perceived as emotional challenges. These situations arise constantly from 2022 to 2025, since training is organized in conditions of a full-scale invasion of Russian troops into the territory of Ukraine with the massive deployment

of armed aggression against the Ukrainian people. Informational uncertainty also arises in a situation of information overload or its absence, expectations of an unfavorable development of events, failures in social interaction, unawareness of the source of danger, loss of control over the situation, etc. Instead, students may experience the effect of emotional challenge in the event of excessive excitement, prolonged experience of negative emotions associated with a traumatic event, danger, a certain undesirable set of circumstances, etc. During the study, we took into account that stress can have different effects on both the body of students and

the process of their performance of activities. This effect can be both a positive mobilizing factor of personal development and subjective well-being in conditions of information uncertainty and emotional challenges, and a negative traumatic one that harms the health of students [1, 2].

We chose reflection as a means of research students' attitudes towards information uncertainty and emotional challenges. Reflection satisfies two conditions: it most fully corresponds to the purpose of our study; it is perceived as a modern social priority of personal development and subjective well-being [3]. The Education 2030 Framework for Action of the Education 2030 Agenda [4] is based on reflection on one's actions, in the process of which current and future social, cultural, economic and environmental consequences are taken into account from a local and global perspective. Such reflection makes it possible to act stably in difficult situations, even if this requires searching for new directions, as well as to participate in socio-political processes in order to drive their societies towards sustainable development.

The Education 2030 Framework for Action [4] also states that reflection on one's actions is part of: 1) critical thinking competence (manifested as reflecting on one's own values, perceptions and actions); 2) self-awareness (manifested in the ability to reflect on the role that each person plays in the local community and global society); 3) self-reflective skills, manifested in the ability to reflect on one's health, participate in reflective dialogues about what a healthy and well-being life means, observe and reflect, and keep reflection journals.

The Programme for International Student Assessment (PISA) [5] focuses on developing each student's potential as a constructive and reflective citizen, as reflected in the ability to engage in cognitive processing to understand and resolve problem situations where a method of solution is not immediately apparent. It includes the willingness to engage with such solutions to achieve one's potential as a constructive and reflective citizen.

In scientific works, the term "reflection" is defined in various ways. These are: a way of thinking; an activity, a development of thinking; thinking about what a person is doing at the moment (reflection in action), thinking as a look back with a reconsideration of the action, activity or events of the day; cognitive and emotional process or activity that is triggered by an unusual or incomprehensible situation Rogers; analysis of responses, beliefs and assumptions through the prism of the current situation [6-11]. The process of engaging in Reflection is the process of engaging with learning and/or professional practice that provides an opportunity to critically analyze and evaluate that learning or practice [12].

In this research, we consider reflection both as a process of self-knowledge by students of their internal acts and states, which are caused by informational uncertainty and emotional challenges, and as a means of gradually transforming traumatic stress into a mobilizing factor of personal development and subjective well-being.

## AIM

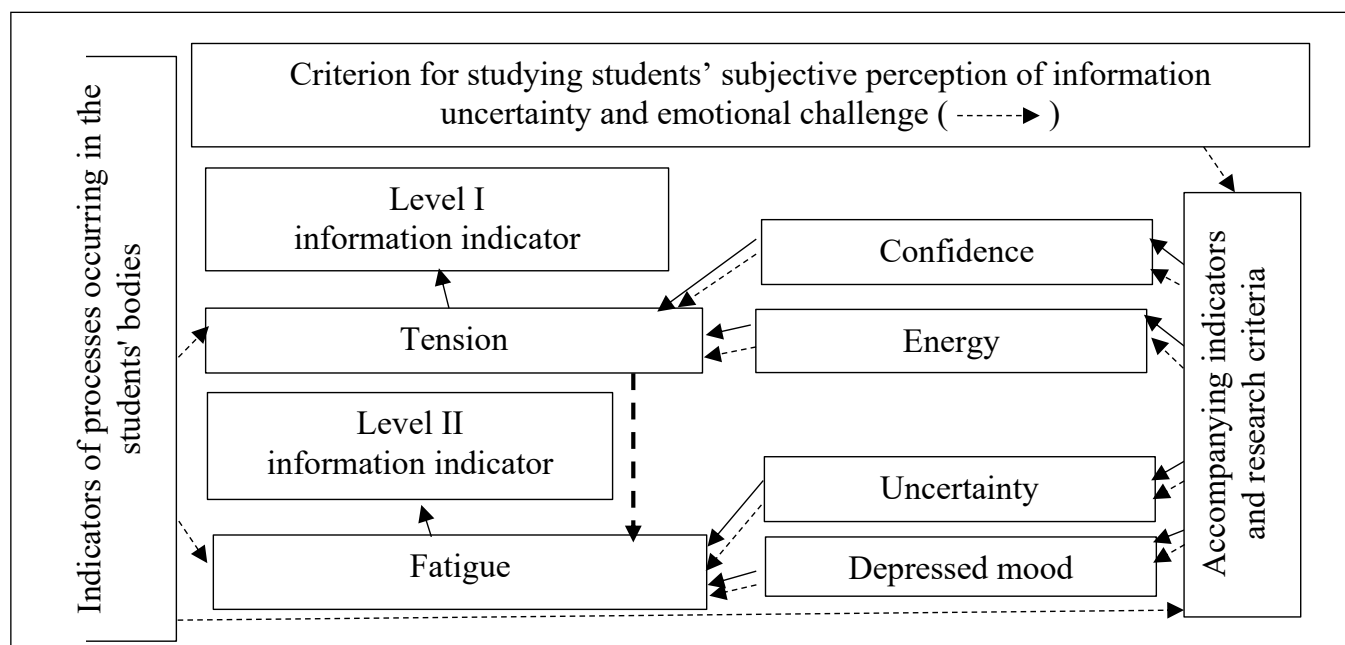
Using time-delayed reflection of the day's events, to determine what worries students the most and is perceived by them as informational uncertainty and emotional challenges that negatively affect their health and learning outcomes. Develop and experimentally test in the educational process of higher education institutions the effectiveness of reflective practicum on the gradual transformation of traumatic stress into a mobilizing factor of personal development and subjective well-being in conditions of informational uncertainty and emotional challenges.

## MATERIALS AND METHODS

A total of 1,500 people participated in the research. These were future teachers and future public health specialists who studied at the Borys Grinchenko Kyiv Metropolitan University and the Bogomolets National Medical University during the war. The work used a set of research methods: general scientific (analysis, comparison, systematization, generalization) and empirical (observation, individual interviews, questionnaires). Indicators were also defined for the research. By the term "indicator" we denoted something that, reflecting the course of processes in the students' bodies, caused a certain state in them, which they not only felt, but also described in words. Also, lecturers distinguished this state based on the direct perception of the students' behavior and posture and made appropriate generalizations about the presence of certain mental states, in particular: positive (confidence, energy) or negative (uncertainty, depressed mood). It is worth emphasizing that students could enter certain mental states (for example, a state of depressed mood) outside the educational institution, but be in this mental state during their studies. The indicators of the study of what worries students the most and is perceived by them as informational uncertainty and (or) emotional challenges that negatively affect their state and reduce the effectiveness of their studies included:

### 1. PROCESSES THAT OCCUR IN THE BODY OF STUDENTS:

- **Tension** as an intensification of physiological processes to achieve the goal of the activity. Optimal tension causes



**Fig. 1.** Indicators of processes occurring in the body of students and criterion for studying reflection as a mobilizing factor of personal development and subjective well-being in conditions of information uncertainty and emotional challenges

optimal performance [13]. Tension is recorded by students as a pleasant feeling, which they describe as follows: “nothing distracts me internally, I want to do it”, “I feel strength / energy”. We have defined tension as an informative indicator of the first level, which indicates how the student relates to informational uncertainty and emotional challenge and signals a transition from moderate tension to excessive, which will change to fatigue.

- **Fatigue** as the regulation of the functional reserves of the body and the performance of a protective function to protect it from excessive loads and exhaustion [13]. Fatigue is recorded by students as an unpleasant feeling, which they described as follows: “I have no strength”, “I am a squeezed lemon”. The state of moderate fatigue allows you to achieve the desired result in activity without harm to health. We have defined moderate fatigue as an informative indicator of the second level, which signals that moderate fatigue can turn into excessive, and then into overstrain, which is dangerous for the health of students.

## 2. POSITIVE AND NEGATIVE MENTAL STATES EXPERIENCED BY STUDENTS:

- Positive mental states: A) Students associate confidence with a willingness to act, as they are sure that they will be successful. B) They explain energy with good health, the presence of energy and associate it with activity. Confidence and energy as accompanying indicators signal the intensification of physiological processes to achieve the goal of the activity, which are perceived by students as positive and pleasant feelings.

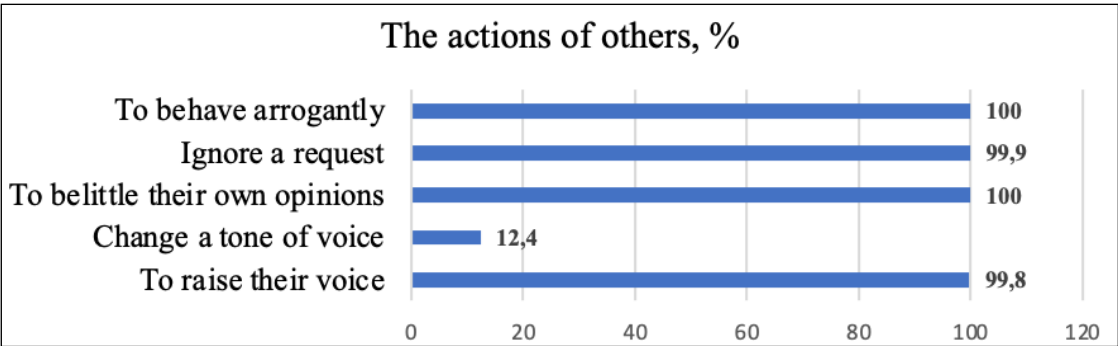
- Negative mental states: A) Insecurity – this mental state of constant hesitation in the correctness of one’s actions. B)

Depressed mood is recorded by students as an unpleasant feeling, which is accompanied by a deterioration in mood. We attribute uncertainty and depression to accompanying indicators that signal the experience of students of a feeling of loss of control over the situation. As shown in Fig. 1, the indicators we identified served as criteria.

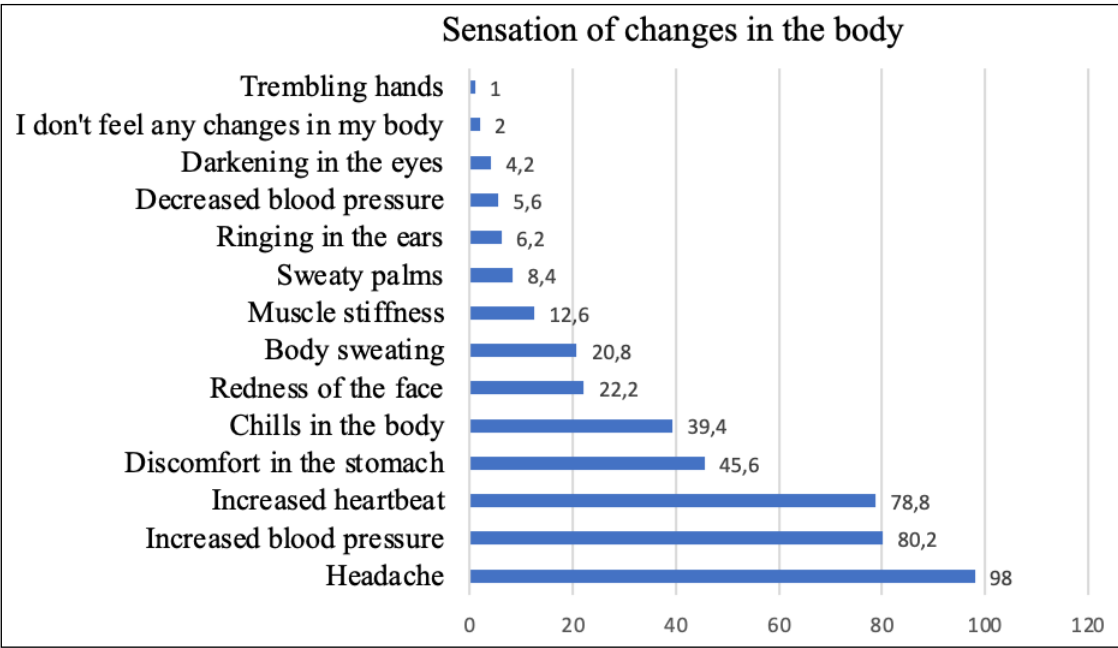
First of all, we note that during the experimental work we oriented students to reflect on events throughout the day, and not just the training process. Deferred reflection on events throughout the day contributed to the isolation of what really worries students. We arranged the results of observations, individual conversations, and questionnaires according to the levels of informative indicators (tension, fatigue).

We divided the students according to the speed of transition from the level I informative indicator to the level II informative indicator. To determine the speed of transition, we took into account the stages of a person’s working capacity during the work cycle, which was correlated with the duration of one lecture, seminar or practical session (hereinafter referred to as the session). The “fast transition” indicator indicates the fixation of depressed mood and uncertainty at the beginning of the session and during its 20 minutes, since this time period correlates with two stages: the stage of entering the activity and the stage of optimally high working capacity.

The number of students with a rapid transition from a state of tension to a state of fatigue (in%) was used for calculations. To establish a correlation between the reduction of rapid transitions from a state of tension to a state of fatigue and the implementation of reflective workshops, we used correlation analysis. The parametric Pearson coefficient (of



**Fig. 2.** The actions of others at the levels of production-labor, educational-training, and current-life functions that students perceive as emotional challenges



**Fig. 3.** Feelings of changes in the body of students caused by informational uncertainty and emotional challenges and established as a result of reflection deferred in time; %

0.05 and 0.01 (at  $p < .01$  and  $p < .05$ ) was calculated using the SPSS Statistics 27 statistical software package.

**RESULTS**

We found that optimal tension is subjectively perceived by students as an unstable process, since it is influenced by information uncertainty and various emotional challenges throughout the day. Students associate information uncertainty and emotional challenges with what is happening in the country (the full-scale invasion of Russian troops into the territory of Ukraine has been going on for the third year), at work (students combine work with study), as well as during study, in the store, in transport, etc.

We systematized students' responses about what they perceive as informational uncertainty and emotional challenges by type of function. Students believe that these are: 1) the actions of others at the level of socio-political func-

tions (such as the massive deployment of armed aggression against the Ukrainian people); the actions of others at the levels of production-labor, educational-training, and current-life functions (when others raise their voices at them, change their tone of voice, belittle their own opinions, ignore them with a request, and behave arrogantly (Fig. 2); 2) the students themselves at the level of personal functions (being late for work, the bus, studying, a meeting).

Students react differently to informational uncertainty and emotional challenges that occur at any point during the day. A very small number of students indicated that they did not record changes in the body, while other students indicated the following changes (Fig. 3): increased heartbeat, trembling hands, chills in the body, headache, increased blood pressure, decreased blood pressure, discomfort in the stomach, sweaty palms, body sweating, muscle stiffness, ringing in the ears, darkening in the eyes, redness of the face.

The way out of informational uncertainty and emotional

**Table 1.** Gradual change of traumatic stress into a mobilizing factor of personal development and subjective well-being in conditions of information uncertainty and emotional challenges (we developed a table using materials from the article [4], authors Floytlog J.I.J., Rasmussen I.)

Description of successive situations	Lecturer's words	Reflection in action on the gradual change of traumatic stress into a mobilizing factor	Reflection on the content of the question as a mobilizing factor for personal development
The lecturer decides to challenge a student who has not yet spoken.	<b>What are your thoughts, Anna?</b>	By inviting Anna to reflect on a difficult question, <u>the lecturer expresses her faith in Anna's ability to participate productively in the dialogue</u>  (Anna is beginning to feel informational uncertainty and emotional challenge)	If Anna and those present in the audience understand that the question is formulated in such a way as <u>to draw attention to the value of Anna's ideas</u> , then Anna's level of informational uncertainty and emotional challenge is not high; if she does not have such awareness, then this level is quite high)
Anna begins to answer the question, but expresses difficulty in explaining.	<b>Tell me more about it</b>	The lecturer continues to invite responses in a way that shows <u>the good points of Anna's response</u>  (Anna's level of informational uncertainty and emotional challenge decreases slightly)	If Anna and the audience understand that the request for a statement is formulated in a way that <u>frames Anna's thoughts as relevant</u> , then Anna's level of informational uncertainty and emotional arousal is minimal. If she does not have such awareness, then this level is above average.
Anna makes a gesture during her response, which the lecturer reads as a critical moment in Anna's response. He reacts immediately, transforming the difficulties Anna experiences into an aspect of collective action	<b>Yes, it's hard to explain!</b>	The lecturer continues to discuss the difficult question, involving all the other students, not because Anna was unable to formulate her opinion clearly enough, but because what <u>Anna says is correct</u>  (Anna's level of informational uncertainty and emotional challenge is reduced to a minimum)	If Anna and those present in the audience understand that the request for a statement is formulated in such a way as <u>to transform Anna's individual work into a collective matter</u> , then she can effectively switch to a collective discussion, that is, perceive this communication not as traumatic stress, but as a mobilizing factor of personal development.  If Anna and those present in the audience have not previously reflected on the content of the question, then Anna will feel a state of overwork and will withdraw from the collective matter

challenges is also not the same. Most students quickly overcome informational uncertainty and emotional challenges by switching attention to something pleasant, distracting (for example, pleasant memories), making an agreement with themselves (I will deal with this at a more convenient time), or reassuring themselves (this state will not yield any results, you need to calm down, accept the situation, and then think about what to do next). In this case, the transition from the process of optimal tension with optimal performance to the process of fatigue is natural and depends on the functional reserves of the body to perform a protective function to protect it from excessive loads and exhaustion.

However, some students think about what happened for a long time. To get out of informational uncertainty and emotional challenges, students begin to cry, drink water, look out the window, observe people, animals, transport, perform breathing exercises, count from one to ten, and then in the opposite direction. In this case, the transition from the process of optimal tension with optimal performance to the process of fatigue occurs rapidly with rapid depletion of the body's functional reserves and contributes to the emergence of a state of overfatigue.

Analysis of the results of observations, individual con-

versations, questionnaires with an emphasis on deferred reflection throughout the day contributed to the formation of a holistic view of informational uncertainty and emotional challenges that are relevant for students and should be taken into account when organizing the learning process.

In order to change traumatic stress into a mobilizing factor for personal development and subjective well-being in conditions of informational uncertainty and emotional challenges, we began to conduct a five-minute reflective practicum at the beginning of practical and seminar classes. For the practicum, we independently developed various cases or transformed the material of scientific articles by other scientists. We drew attention to a scientific article of that discussed the organization of reflective sessions with Talkwall, in which video recordings of lessons were discussed with teachers and researchers. Based on the content of the dialogue, we developed the content of Table 1.

According to the results of the experimental work, we recorded the following positive changes. Conducting five-minute reflective workshops at the beginning of practical and seminar classes influenced students who, before the start of the workshops, almost always began their studies with a process of fatigue, not a process of tension.

During individual conversations, these students explained their condition by the fact that they cannot quickly switch to the learning process, but constantly think about what happened previously in the family, at work, in transport, on the street, in the store, etc. The changes that occurred were the appearance of a process of tension before the process of fatigue. Conducting reflective practicums not only switched attention from previous challenges to considering what was offered during the practicums, but also formed a readiness to act effectively in conditions of information uncertainty and emotional challenges, which, in turn, reduced the time this category of students spent in a state of depressed mood. Students also indicated that conducting reflective practicums prevented them from falling into a state of uncertainty and depressed mood, as they expanded their personal experience with ways to maintain subjective well-being in conditions of informational uncertainty and emotional challenges.

## DISCUSSION

According to generalized data covering the pre-war period and the annual period of hostilities on the territory of Ukraine [14], the prevalence of stress among Ukrainians in 2012 was 45%; in 2016 – 50%; in March 2022 – 53%, after the end of the war year – 80%.

By the end of the second year of the war, the prevalence of stress had reached 96%. A traumatic experience typical of all respondents without exception. These are 1) fear of shelling; 2) anxiety in anticipation of night and morning shelling; 3) concern about the condition and life of relatives, friends, acquaintances, and soldiers; 4) increased sensitivity to sounds in the environment; 5) experiences during sleepless nights; 6) loss of self-control during training in the warehouse, constant distractions to information about the state of events during the “air alarm” signal. The third year of the war is also characterized by high levels of stress [1]. In the context of the above, the organization of student education, which, on the one hand, will not generate additional stressful situations, and, on the other

hand, will contribute to the normalization of the mental state of students, becomes relevant [15, 16].

Experimental evidence suggests that reflection during learning is a common phenomenon. During learning, lecturers support students' reflection in various ways. They use reflective circles [12], include reflection as a stage in the educational design process [9], involve students in reflecting on their learning experience and on-the-job practice (consultations with students, parents of students; patients), use reflective diaries, journals, portfolio [12].

According to the results of our study, reflection should be aimed at restoring the optimally appropriate course of tension and fatigue processes that will contribute to the personal development of students and their sense of subjective well-being.



Also, we must emphasize the limitations of our research. This is the coverage of the experiment only by persons who received higher education during the third year of the full-scale military invasion of the territory of Ukraine. Our research did not include other of Ukrainians.

## CONCLUSIONS

It has been established that under the influence of informational uncertainty and emotional challenges, students begin to feel uncertainty and depressed mood. Ignoring these states during learning reduces learning effectiveness, as students experience an accelerated transition from the process of tension to the process of fatigue.

In order to restore the optimally appropriate course of tension and fatigue processes in students, it is necessary to: 1) find out the duration of these processes; 2) determine factors that cause states of uncertainty and depression mood; 3) conduct five-minute reflective practicum at the beginning of practical and seminar classes, which train in the implementation of reflection, when the identified factors act as its objects; 4) practice the gradual transformation of traumatic stress into a mobilizing factor of personal development and subjective well-being in conditions of information uncertainty and emotional challenges.

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## CONFLICT OF INTEREST

The Authors declare no conflict of interest

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