UDC 378.091.39:159.955.4
https://doi.org/10.31612/2616-4868.5.2025.14

THE REFLECTIVE COMPONENT OF IMPLEMENTING A TRAUMA-INFORMED APPROACH TO LEARNING AS A PREVENTIVE TOOL AGAINST THE DEVELOPMENT OF FATIGUE IN STUDENTS DURING FIELD PRACTICUM

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Abstract

Introduction. The article examines the practical aspect of implementing trauma-informed learning with an emphasis on reflection as a preventive tool. Experimentally cases of the emergence of prerequisites for the premature appearance of fatigue in students during industrial practice are identified and ways to prevent this process are specified.
Aim. To summarize data on the state of use of reflection during students' education, in particular during their field practicum; to investigate reflection as a preventive tool for the development of fatigue; to identify cases of premature appearance of fatigue in students during field practicum using reflection.
Materials and methods. The methods of theoretical analysis of scientific sources and the method of generalization of empirical data were used. Students studying at a higher education institution under martial law were involved in the pedagogical experiment. The total number of students is 1800 people.
Results. It has been established that reflection is an indispensable attribute of the learning process. Reflecting at different stages of learning, students acquire knowledge, skills, expand experience, learn to solve professional problems, evaluate results, plan further directions of educational activity, etc. The reflection process varies in the number of participants (individual, group), time of implementation (reflection during action, reflection deferred in time), purpose (reflection of the action being performed; reflection of the action to be performed; reflection to determine behavior, tactics, strategy). It has been established that reflection is not used as a preventive tool.
Conclusions. The effectiveness of using reflection during student training as a preventive measure for the development of fatigue has been experimentally proven. It has been established that the emergence of prerequisites for the premature appearance of a feeling of fatigue is stopped if, during training, students are given the opportunity to choose and implement the following types of communication with the lecturer: 1) communication for phased control of intermediate results of task performance; 2) communication to determine the sequence of actions to overcome intellectual difficulties that the student cannot overcome by making multiple attempts; 3) ongoing communication, during which the lecturer directs the student's actions.

Keywords: **trauma-informed approach, preventive tool, reflection, students, lecturer, communication, practicum paper, fatigue, premature onset of fatigue, development of fatigue**

INTRODUCTION

Training in conditions of military operations on the territory of Ukraine should be organized taking into account the traumatic effects of these conditions and the traumatic experience of all training participants. In previous studies, we revealed the essence of trauma-informed approach in the context of the functioning of the inner world of a person and the impact on changing the levels of situational and personal anxiety [1]. We identified the conditions for implementing trauma-informed training as a tool of stabilizing the negative impact of stressful and destructive factors of war on the inner world of future teachers and future public health specialists [2]. We also summarized data on trauma-informed training practices, which, according to the results of the study, effectively affect the reduction of the level of situational and personal anxiety of students who are studying in person during military operations [1].

Continuing the study of the implementation of a trauma-informed approach to student learning, we drew attention to cases of fatigue in students, which, being a complex subjective feeling, accompanies the development of fatigue, transforms into chronic fatigue or overfatigue, which, in turn, can cause irreversible processes in the body. Scientists [3, 4, 5] include solving a large volume of complex tasks in conditions of time and information deficit, prolonged performance of monotonous activities as typical cases of fatigue. However, cases of premature onset of fatigue are also typical for modern students. To research these cases, we chose reflection, which will help identify cases of the emergence of prerequisites for the premature appearance of fatigue, that is, it will serve as a preventive tool.

AIM

To summarize data on the state of use of reflection during students' education, in particular during their field practicum; to investigate reflection as a preventive tool for the development of fatigue; to identify cases of premature appearance of fatigue in students during field practicum using reflection.

MATERIALS AND METHODS

The selection of materials and methods was aligned with the study's objective. Thus, analytical processing of scientific articles was implemented to summarize data on the state of use of reflection during student education, the presence of articles in which reflection was studied as a preventive tool against the development of fatigue. A total of 1800 students studying under martial law were involved in the pedagogical experiment. The state of fatigue was recorded by both the students themselves and the lecturers. When experiencing fatigue, students reported weakness, powerlessness, lethargy, physiological discomfort, and a strong desire to discontinue their academic activities. The lecturers understood that the students had entered a state of fatigue, since they began to observe a pronounced loss of interest in educational activities and negative emotional reactions.

A practicum paper was developed for the pedagogical experiment (Table 1).

Table 1

Practicum paper «Content of reflection» (Task: to prepare and conduct an open lecture for first-year master's students. Task implementation: phased (second column of the table))

Stage number	Stages of completing the task of practicum paper	Content of reflection	Feeling of fatigue			Levels of fatigue		
			Is absent (+)	Is emerging (+)	Is increasing (+)	Low (3)	Medium (2)	High (1)
Reflection in action (activity)								
I	I have been informed that I need to fulfill the role of lecturer and give a lecture to first-year master's students							
II	I have been notified of the lecture topic							
III	I prepare myself for the lecture							
IV	The practice supervisor invited me to a consultation							
V	My feelings after the consultation							
VI	I am working on my own again							
VII	I will be a lecturer today							
VIII	I will be giving a lecture in 5 minutes							
IX	I am giving a lecture							
X	Me after the lecture							
Reflection delayed in time: a holistic view of the task process								
When did the feeling of fatigue arise?								
Was it premature fatigue?								
Is fatigue a result of long work?								
What do you think caused the fatigue?								
Was it a traumatic experience?								

RESULTS

It should be emphasized that we are considering the problem of using reflection as a preventive measure for the development of fatigue for the first time in this research. However, we singled out the article [6], the authors of which studied reflection, paying attention to metacognitive prompts for reflection. Although the authors of these articles did not study reflection as a preventive measure, we consider the results of their research valuable, since the transformation of the results obtained in the context of using reflection as a preventive tool against the development

of fatigue may contribute to the formation of variability in approaches to the use of reflection as a preventive tool during the training of future specialists. Let us present the content of the article [6] transformed by us in Table 2.

Table 2

Analysis of the use of metacognitive prompts for students to perform reflection as a preventive tool

Work of J. Splichal, J. Oshima, R. Oshima [6]		Our work on reflection as a preventive tool	
Direction of reflection	**Metacognitive prompts for reflection**	**Prevention of fatigue**	
		reducing the level of information overload	**promoting emotional comfort**
Reflection on group progress	What issue did you discuss? What other problems did you discover during the discussion? What was today's plan to do as a group? Did the group achieve what it set out to do? Have you identified individual tasks for next week?	What **other problems** did you discover during the discussion? (*The likelihood of identifying several issues, this number issues may worry students that all need to be addressed*) What was **today's plan** to do as a group? (*Planning for today relieves tension*) Have you identified individual **tasks for next week**? *(Planning for a significant period of time relieves tension)*	Have you identified **individual tasks** for next week? *(Completing individual tasks relieves tension)*
Individual reflection	Evaluate your group's progress and give reasons? Was the goal shared among all group members? Were group members aware of their own roles? Did you have rules that facilitated group work? Did you follow the rules that you all established? Did you use any tools for recording the activity or sharing information? Did each member actively contribute? How did today's activity go? Did it go well? Are there any improvements that could be made?	Did each **member actively contribute**? (*Involving everyone reduces information tension*) How did today's activity go? Did it go well? Are there any improvements that could be made? (*Discussion makes it possible to identify points of information tension and eliminate them in further work. Discussion makes it possible to identify points of information tension and eliminate them in further work)*	Were members aware of their **own roles**? (*Knowing what everyone needs to do reduces emotional stress*) Did you have **rules facilitating group work**? *(Discussion makes it possible to identify points of emotional tension and eliminate them in further work)*

After analyzing the work of scientists J. M. Splichal, J. Oshima, R. Oshima [6], we found that reflection as a preventive measure should be aimed at reducing the level of information overload and promoting emotional comfort.

The experimental work we designed and conducted contributed to the identification of cases of the emergence of prerequisites for the premature appearance of a feeling of fatigue in students. To identify these cases, we developed a practicum paper «Content of reflection» (Table 1). Second-year master's students recorded in this practicum paper their reflections on the feeling of fatigue (absent, emerging, increasing) and the level of fatigue (low, medium, high) at each of the 10 stages of the field practicum task (to prepare and conduct an open lecture for first-year master's students).

It should be added that the master's students learned about the preparation of an open lecture and the need to hold it for first-year master's students a year before the internship. That is, during the year, the stages of completing the task were implemented (the second column of Table 1) and the students' work in the practicum paper was organized in such a way that students carried out various types of reflection, in particular: reflection in action (activity) in accordance with the specified stages of completing the task; reflection delayed in time for a holistic view of the process of completing the task. The course of reflection in action (activity) was guided by the following questions: When did the feeling of fatigue arise? Was it premature fatigue? Is fatigue a result of long work? What do you think caused the fatigue? Was it a traumatic experience?

The analysis of the content of the records on reflection in action (activity) and reflection delayed in time, which the students recorded in the practicum paper «Content of reflection», revealed the feasibility of isolating three cases of the emergence of prerequisites for the premature appearance of a feeling of fatigue in students.

The first case is the manifestation by the student of multiple transitions from the absence of fatigue to its rapid onset, which are accompanied by fluctuations from the manifestation of interest in the activity to its loss. These fluctuations occur when there is no periodic communication with the lecturer, during which the student receives confirmation-stimulus for further actions. This case is characterized by the cyclical recurrence of two mental states (absence of fatigue and emerging fatigue) at each stage of the performance of the field practicum task. After a small period of time, the student feels fatigue and unwillingness to act when the student is deprived of communication with the teacher at each stage of the task. The aim of this communication: to make sure of the correctness of both actions and intermediate results. The emergence of prerequisites for the premature appearance of a feeling of fatigue in students becomes possible in the

absence of communication with the lecturer, during which the student's actions are directed.

The second case is when the student experiences multiple transitions from the absence of fatigue to its rapid onset due to intellectual difficulty that the student cannot overcome, and the planned consultation with the lecturer is postponed in time. These circumstances cause the premature appearance of a feeling of fatigue, as the student experiences a sense of inability to complete the educational task, loses control over the situation and disrupts their plans, as he or she is deprived of urgent communication with the lecturer in the event of intellectual difficulty. The aim of such communication: the desire to get out of intellectual difficulty and continue working within the framework of his planning. The emergence of prerequisites for the premature appearance of a feeling of fatigue becomes possible in the absence of communication with the lecturer to determine actions to overcome intellectual difficulty.

The third case is the manifestation by the student of a long-term movement from the absence of fatigue to its rapid onset at the final stages of the performance of the field practicum task. The student begins to worry about the result of the field practicum task, since he or she realizes that a lot of time has been lost due to postponing intermediate tasks. These circumstances become prerequisites for the premature appearance of a feeling of fatigue, since the experience of a feeling of inability to complete the educational task is rapidly increasing. Communication with the teacher cannot bring the student out of a depressed state, since he or she is fixated on the loss of time and loss of control over the situation, feels the inability to complete the educational task, physiological discomfort. In order to avoid the emergence of prerequisites for the premature appearance of a feeling of fatigue, the student should use individual ongoing communication with the lecturer in order to gradually control the achieved intermediate results of the performance of the field practicum task.

The analysis of the above-mentioned cases of the emergence of prerequisites for the premature appearance of a feeling of fatigue in students contributed to the definition of the lecturer's actions that make it impossible to develop these prerequisites. We included such actions as:

– Current communication, during which the student's actions are directed;

– Communication to determine the sequence of the student's actions to overcome intellectual difficulty;

– Communication for phased control of the intermediate results of the student's task performance.

In Figure 1, we visualized data on students' choice of the most preferred type of communication with the teacher at the beginning of two academic years (2022-2023 and 2023-2024) and after the end of the academic year. It should be added that students were involved in the pedagogical experiment for only one year. This approach contributed to the involvement of students, the number of whom was twice as large.

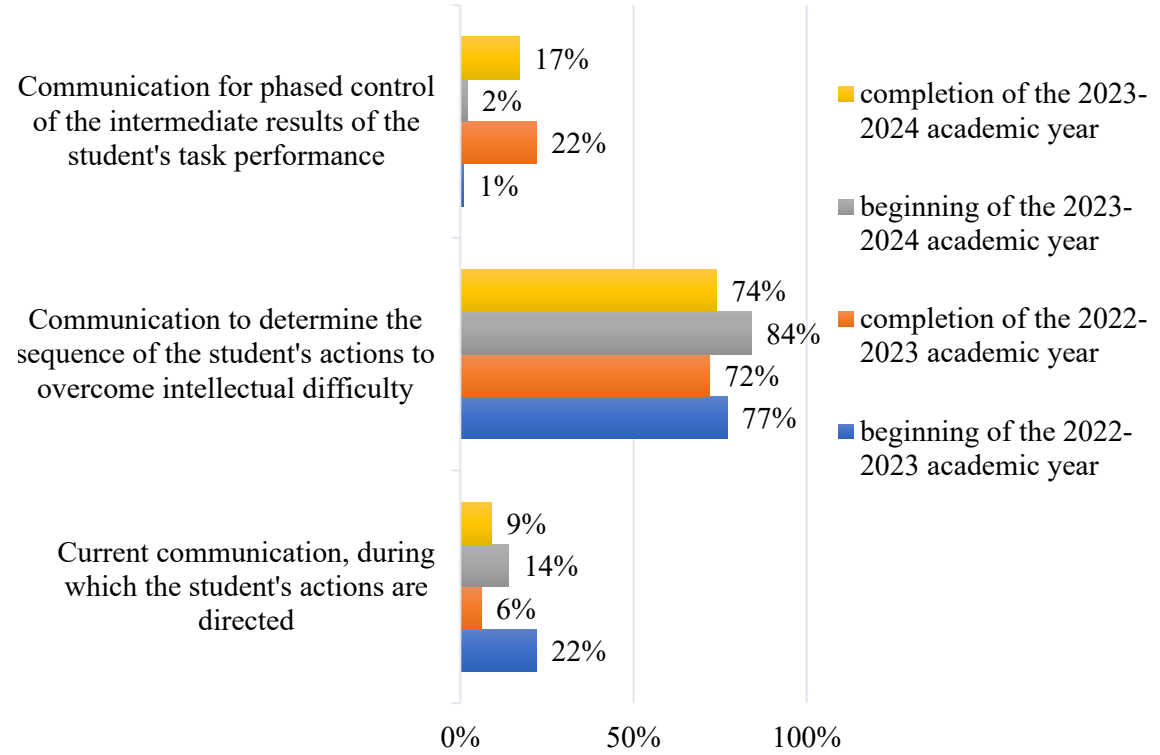

Figure 1. Students' choice of the type of communication with the lecturer, which, in their opinion, is the most effective, at the beginning of their studies and after the end of the academic year.

Analysis of the figure data shows that delayed reflection actually reflects students' educational needs and reveals what may cause the emergence of prerequisites for the premature appearance of a feeling of fatigue in students.

DISCUSSION

In modern scientific articles, the reflection process is analyzed with an emphasis on the number of participants (individual / group), on the time of its implementation (reflection during action / reflection deferred (postponed) in time), on the purpose of involving students in reflection (reflection of the action being performed, reflection of the action to be performed, reflection to determine behavior, tactics, strategy) [7, 8, 9, 10, 11, 12, 13].

Scientists pay significant attention to the process of developing reflection, pointing to factors that cause its development when students:

1) reflectively implement learning activities [14];

2) reflexively analyze their practical experience [15];

3) solve problems reflectively [16];

4) reflect on their input and output [9].

The training of future professionals is carried out using different types of reflection: reflection in action (as thinking about what a person is doing while he or she is doing it); reflection on action (as a less hasty look back and re-examining the events of the day) [17, 18]; reflection on learning for further learning and self-development; reflection on learning for application to professional practice; reflection on professional practice for further learning and self-development; reflection on professional practice for application to future professional practice [19].

Scientists consider reflection mainly as a didactic tool that helps students to tune in to a certain topic (problem), discuss a certain educational material, realize what they already know and what they still need to work on. Reflection as a didactic tool is a reflection on one's own achievements, actions, behavior, deeds, activities, and events of the day in order to understand an unusual or incomprehensible situation, to comprehend new educational material, to enrich one's own experience, etc.

Without denying the achievements of scientists in implementing reflection a didactic tool for the multifaceted personal development of students, we consider reflection as an effective preventive tool.

CONCLUSIONS

1. It has been experimentally proven that reflection is an effective preventive tool, since the analysis of the content of reflective reveals factors, situations that need to be taken into account during training, professional practice, personal development, and building relationships, so as not to reduce the effectiveness of these processes and not to worsen the health of students.

2. The effectiveness of using practicum paper «Content of reflection» in the context of the practical implementation of a trauma-informed approach to student education has also been experimentally proven, during which lecturers' attention is focused on cases of the emergence of prerequisites for the premature appearance of a feeling of fatigue in students.

3. The use of reflection as a preventive tool contributed to the identification of the following cases of the emergence of prerequisites for the premature appearance of a feeling of fatigue in students:

Case I – the rapid emergence of fatigue is caused by constant short-term fluctuations: the manifestation of interest in the activity – loss of interest. These fluctuations are recorded in the absence of periodic communication with the lecturer, during which the student receives confirmation-stimulus for further actions.

Case II – the rapid onset of fatigue is caused by intellectual difficulty that the student cannot overcome, and the planned consultation with the teacher is postponed in time. In this case, the student's fatigue quickly increases against the background of experiencing a feeling of inability to complete the educational task, loss of control over the situation, violation of his plans. The aim of communication with the lecturer: the desire to urgently get out of intellectual difficulty, continue work within the framework of his planning, determine actions to overcome intellectual difficulty.

Case III – rapid onset of fatigue is recorded only at the final stages of task completion. The feeling of inability to complete the educational task is rapidly increasing due to constant postponement of this process for later. Communication with the lecturer cannot bring the student out of a depressed state, since he is fixated on the loss of time, loss of control over the situation and the feeling of inability to complete the educational task. The student's communication with the lecturer should be ongoing and aimed at phased control of the intermediate results of the task.

4. To prevent the emergence of prerequisites for the premature appearance of a feeling of fatigue in students, it is necessary to provide three communication options:

– communication for phased control of intermediate results of the student's task performance;

– Communication to determine the sequence of the student's actions to overcome intellectual difficulty;

– Current communication, during which the student's actions are directed.

Perspectives for further research. We plan to research the prerequisites for the premature appearance

of fatigue in students during face-to-face and distance learning.

COMPLIANCE WITH ETHICAL REQUIREMENTS

In this study, the authors adhered to the Ethical Principles for Medical Research Involving Human Subjects outlined in the World Medical Association's Declaration of Helsinki (VMA, 1964 p.) and current Ukrainian regulations. Participants had the right to withdraw from the study at any time, without explanation. In line with confidentiality regulations, all data was collected anonymously and processed in accordance with applicable data protection standards. All information was utilized solely within the context of this study and was provided in an aggregated form for results analysis.

FUNDING AND CONFLICT OF INTEREST

This study was conducted with no external funding. The authors declare no conflicts of interest.

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Резюме

РЕФЛЕКСИВНИЙ КОМПОНЕНТ РЕАЛІЗАЦІЇ ТРАВМА-ІНФОРМОВАНОГО ПІДХОДУ ДО НАВЧАННЯ ЯК ЗАСІБ ПРОФІЛАКТИКИ РОЗВИТКУ ВТОМИ У СТУДЕНТІВ ПІД ЧАС ВИРОБНИЧОЇ ПРАКТИКИ

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Вступ. У статті розглядається практичний аспект реалізації травма-інформованого навчання з акцентом на рефлексії як на профілактичному заході. Експериментально виявлено випадки зародження передумов для передчасної появи у студентів відчуття втоми під час проходження виробничої практики та конкретизовано способи запобігання цьому процесу.
Мета. Узагальнити дані про стан використання рефлексії під час навчання студентів, зокрема під час виробничої практики; дослідити рефлексію як профілактичний засіб розвитку втоми; з використанням рефлексії виявити випадки передчасної появи у студентів відчуття втоми під час проходження виробничої практики.
Матеріали та методи. Використано методи теоретичного аналізу наукових джерел та метод узагальнення емпіричних даних. До педагогічного експерименту були залучені студенти, які навчаються у вищому навчальному закладі в умовах воєнного стану. Загальна кількість студентів – 1800 осіб.
Результати. Встановлено, що рефлексія – неодмінний атрибут процесу навчання. Рефлексуючи на різних етапах навчання, студенти набувають знань, умінь, розширюють досвід, навчаються вирішувати професійні проблеми, оцінюють результати, планують подальші напрями навчальної діяльності тощо. Процес рефлексії різнитися кількістю учасників (індивідуальна, групова), часом здійснення (рефлексія під час дії, рефлексія відтермінована в часі), метою (рефлексія дії, яка виконується; рефлексія дії, яка буде виконуватися; рефлексія для визначення поведінки, тактики, стратегії). Встановлено, що рефлексія не використовується як профілактичний засіб.
Висновки. Експериментально доведено ефективність використання рефлексії під час навчання студентів як профілактичного засобу розвитку втоми. Встановлено, що зародження передумов для передчасної появи відчуття втоми зупиняється, якщо під час навчання студентам надається можливість обирати та реалізувати такі види спілкування з викладачем: 1) спілкування для поетапного контролю проміжних результатів виконання завдання; 2) спілкування для визначення послідовності дій з подолання інтелектуального утруднення, яке студент не може подолати, здійснюючи багаторазові спроби; 3) поточне спілкування, під час якого викладач спрямовує дії студента.

Ключові слова: **травмо-інформований підхід, профілактичний засіб, рефлексія, студенти, викладач, спілкування, зошит виробничої практики, втома, передчасна поява відчуття втоми, розвиток втоми**

Received: 23.12.2024
Accepted: 20.03.2025