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Developing reflective dialogue educational approach using the Moodle distance learning platform

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ABSTRACT

Modern education is a rapidly developing field of social practice. Requirements for the professional skills of future specialists are being developed; mechanisms are being created that stimulate improving the quality of education. This research is aimed to identify the level of students' reflective competencies with the formation of a distance curriculum within the Moodle platform. The study sample consisted of 71 psychology students from Kazakh universities: Toraighyrov University, NJSC, Pavlodar Pedagogical University, NJSC, and L.N. Gumilyov Eurasian National University. The reflective competencies were measured using a diagnostic map based on the "Method for determining the individual measure of reflection" (A.V. Karpov, V.V. Ponomareva). The test for reliability and validity was justified: the calculation showed a good value for the internal consistency of the diagnostic map: $\alpha = 0.887$ in the experimental group and $\alpha = 0.822$ in the control group. The findings show a significant improvement in the reflection level: from predominantly middle to high in the experimental group. More than half of the experimental group and one-fifth of the control group improved their reflective skills. This paper has a practical value: further investigation of education digitalization's impact on the development of reflective competencies in students from other regions.

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KEYWORDS
Distance learning; education digitalization; Moodle; reflective dialogical approach; reflective dialogue

Introduction

The reflective dialogical approach to the pedagogical process is the most attractive and interesting. It helps to give the learning process modern unique features. In particular, it means spirituality, interactivity, and increased productivity of the dialogue format. Most importantly, synergy in the dialogue and true co-creation of a teacher and students appear (Karnieli-Miller & Neufeld-Kroszynski, 2020).

The main functions of dialogue are self-knowledge and self-assessment. An essentially significant idea underlying the definition of the dialogue functions may be the idea that a person understands themselves through the perception of another person. Education is an important basic element of such cognition. A free form for presenting one's thoughts and views is the basis for ensuring the development of social thinking and reflective consciousness (Chan & Lee, 2021).

Much attention should be paid to the specific organization of dialogic communication by analyzing its sources. This perspective updates the inner world resources of a particular person, social feelings, values, and value relations of people entering into a dialogue. All these resources form the foundation of a productive dialogue (Mello et al., 2021). This dialogue can arise in many different

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positions such as joint work and mutual development in the future. However, the incompatibility of points of view is also valuable since it stimulates an active dialogue and allows determining the contribution of each individual to this process (Schmidt & Clawson, 2020). The reflective dialogical approach is based on the current value semantic guidelines for the education development and review of the goals, content, and technological priorities of educational practice (Dautova, 2018).

Special technologies and tools are used to create a reflective environment. The parameters of this environment are the relations, content, and methods of activity that develop in the university system. The reflective environment is a dynamic structure capable of expedient changes. The personality develops passing through the ''educational cycle'' here. In such a case, reflection is understood as a general principle of active existence; in a reflective environment, all participants of the pedagogical process are subjects of activity (Baxter et al., 2021). At that, teaching activity is reflective management, when the decision-making process is transferred to a student at the levels of self-determination, self-knowledge, and self-actualization (Mondragon et al., 2021; Naicker & Van Rensburg, 2018).

Problem statement

A large number of hypotheses related to distance education are considered in the modern scientific literature. The specifics of reflection are in educational process individualization online due to forming the most implementational form for all educational process subjects. At the same time, the question is raised about the expediency and rationality of using one or another tool in the context of ensuring a student's self-organization during remote classes. These aspects still remain understudied. As a result, the purpose of this research is to identify the development of students' reflective competencies with the formation of a distance curriculum within the Moodle platform. The following tasks were formed during the study:

– develop an educational program for psychology students using a distance learning system,
– analyze the reflective competencies of respondents using the developed diagnostic map based on the ''Method for determining the individual measure of reflection'' (A.V. Karpov, V.V. Ponomareva),
– compare the results of the experimental (EG) and control groups (CG) over time.

Literature review

Reflection in education

Many scientific psychological and pedagogical papers consider not so much the reflective dialogical approach as a theoretical and methodological basis of research and practical activity or a concept, but rather reflection as a principle, a form of theoretical and practical professional activity or activity itself. Considering the high influence of teacher-student interaction, which consists of student feedback after assimilation of the information from a teacher, academic success is related to the constant improvement of such educational processes (Brookfield, 1995).

To fully characterize the concept of reflection, the methodological and categorical apparatus concerning scientific psychology should be additionally considered. Reflective thinking is an active, attentive, and persistent consideration of any knowledge format to draw certain conclusions in the future (Roca, 2022).

On the one hand, it is worth considering reflection as a tool for the self-realization of each individual along with the self-development and creativity in their life (Gorski & Dalton, 2020; Rubinshtein, 2012). Contemporary researchers more often provide the approach to reflection as a component of human thinking, especially regarding the paradigm of human consciousness (Anisimov, 2010; Rubinshtein, 2012). At the same time, reflection is also considered an obligatory basis for theoretical thinking (Piaget, 2001).

Analyzing this determinant from a narrower point of view, it is worth pointing out that reflection is the ability of a professional to integrate their experience, knowledge, and research to solve various

problems and choose the best method (Stodter et al., 2021). At the same time, the concept of reflection can also be classified into two separate types: the first is the reflection of a person performing certain actions in a particular situation; the second can be relevant for observers and accomplices. It should be noted that a reflection process has certain circularity. The doer and the observer directly interchange their opinions; as a result, in the future, they influence each other by entering into the dialogical interaction (Bethell et al., 2021; Ellis, 2020).

Reflective perception should also be considered in the context of an individual's expression of feelings and emotions (Anderson, 2019; Attard, 2020). At that, the concept of individuality can manifest itself in various forms, in particular, feelings and emotions. At the same time, each person can understand in others only the features present in their own personality. As a result, the dialogue format can give full knowledge of oneself as Another person (Davydova, 2009; Wegerit, 2007).

The concept of reflection is related to the implementation of basic teaching practices, especially with the actualization of online education. Research indicates a significant relationship between the reflection components and the students' learning process considering some key aspects of educational activity: increasing the knowledge depth, identifying areas that require pedagogical transformation, personalization, and knowledge contextualization, providing comparative references for learning, and helping students create structural and social connections (Verhoef et al., 2021). At the same time, some researchers even report the impossibility of transitioning to an effective digital education with an insufficient concentration of the teaching system on the development of reflective competencies (Chang, 2019). As a result, a significant difference was noticed in the systematic teaching due to the transformation of the contemporary educational system into a more mobile and digitalized one (Rubinshtein, 2012; Zaitsev, 2019).

Distance learning tools in the context of a student's personal development

The development of information and communication technologies has allowed humankind to realize the idea of live audiovisual communication across distances. The educational system has been using this idea in the organization of the educational process for more than a decade. The events of recent years related to the COVID-19 pandemic that has hit the world have made distance learning a full-fledged and even dominant form of education (Baxter et al., 2021).

Learning through information and communication technologies is one of the most effective and promising systems of professional education. The basis of the pedagogical process in professional learning is the formation of a need for self-education. A student in the distance learning system is an active subject of education (Waltonen-Moore et al., 2006). Various information and telecommunication technologies for education activate students' learning.

To systematize teaching methods, different versions of their classifications are created on different grounds (Gray & Sanders, 2020). All these methods are designed to develop reflective skills, improve creative thinking, and critically assess the situation. Among their extensive list are the following:

– problematic and partial search methods. A student should solve the specific practical problems with limited intellectual resources,
– reflective methods,
– dialogue method as a part of reflective education, a way of interaction between participants in the educational process (Davydova & Petrov, 2013).

Methods and materials

Research design

The study developed the program to improve students' reflective competencies using the results of scientific and technological progress in educational activities. In particular, the researchers developed the following:

– methodological complex "Reflection and reflective dialogue in group counseling" of the discipline "Group counseling",
– the block "Relationship between reflection and emotional intelligence" of the discipline "Practical work on the development of emotional intelligence" for the students of the specialty "6B03103 – Psychology",
– the textbook "Білім алушылардың өзіндік жұмысын ұйымдастырудың рефлексивті әдістері" (Reflective methods of organizing students' independent work) for undergraduate students, teachers, and psychologists of educational organizations,
– the electronic manual "Development of reflective skills in students in the pedagogical process" for teachers and students of universities.

At that, they considered the development of critical thinking and reflection of students. The Moodle platform was an information and communication educational environment including the use of network technologies to support students' independent work (SIW) (Figure 1).

This web application includes educational materials designed as objects in the distance learning system. Teachers can create a course, control the educational process, and conduct online conferences, and students study materials for given courses, and pass tests, thus mastering the curriculum. In turn, advisory support on such platforms allows developing key student competencies: analysis of one's and others' mistakes, search for the necessary information, synthesis, etc.

Participants

The study was based on the following universities: Toraighyrov University, Pavlodar Pedagogical University (Pavlodar), and L.N. Gumilyov Eurasian National University (Nur-Sultan, Kazakhstan). The study sample involved students of the specialty "6B03103 – Psychology" divided in two groups: an experimental group (n = 71), which included students in the Toraighyrov University, and a control group (n = 82) with students from the L.N. Gumilyov Eurasian National University.

Statistic instruments

To determine the reliability of the diagnostic map developed for assessing the reflective dialogical relations in the pedagogical process of the university and the level of the students' reflective

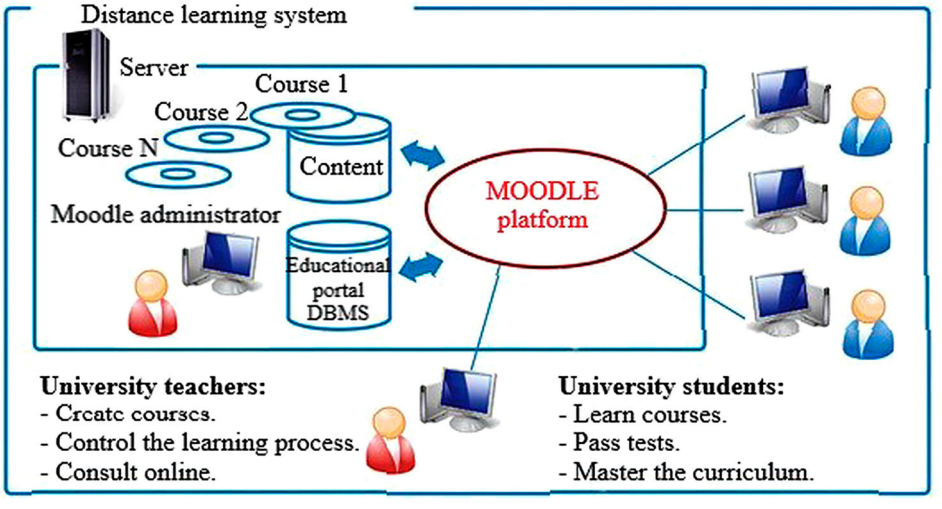

Figure 1. Moodle distance learning system.

competence, the researchers calculated the α-Cronbach coefficient (Cronbach's alpha) using the universal statistical software SPSS 19.0. The calculation showed a good value of the internal consistency for the diagnostic map characteristics: $\alpha = 0.887$ in the experimental group and $\alpha = 0.822$ in the control group. A positive number from 0 to 1 determines the validity of a diagnostic technique. The closer the value is to 1, the higher the reliability of the method. The findings demonstrate a rather high consistency between the scores on the developed diagnostic map.

Data analysis

This diagnostic map was provided to each student for self-assessment, then to one of their fellow students for assessment concerning the first, then to a teacher conducting the research, and to another teacher and (or) practice leader, who knows a student being tested and can give them an expert assessment. Thus, the map was constructed based on the "360 degrees" method, which gives a rather objective assessment.

Three blocks of characteristics represent the structure and content of the diagnostic map. Each block contains two characteristics. Thus, there are six characteristics in total. When filling out a diagnostic map, a respondent should select the appropriate score based on the following criteria (in points) corresponding to three levels:

1) High:
   – 5 – "excellent", the characteristic manifests itself clearly and consistently.
   – 4 – "good", the characteristic manifests itself in the vast majority of cases.
2) Middle:
   – 3 – "not bad", the characteristic manifests itself often, but not always.
   – 2 – "satisfactory", the characteristic manifests itself from time to time.
3) Low:
   – 1 – "unsatisfactory", the characteristic manifests itself sporadically.
   – 0 – the characteristic does not manifest itself at all.

The result allows for determining the level of students' reflective competence:

1) 4–5 points – a high level characterized by the formation of all reflective competencies and a pronounced need for further development of reflective competence.
2) 2–3 points – a middle level characterized by a noticeable manifestation of some competencies, but insufficient development of others.
3) 0–1 point – a low level characterized by the sporadic presence or absence of reflective competencies and the need for their formation and improvement.

The researchers studied and compared average indicators of the students' reflection based on answers to the questions of a psychometric test to determine the individual development of reflection, "Method for determining the individual measure of reflection" (A.V. Karpov, V.V. Ponomareva). The questionnaire consists of 27 items, the answers to which are formed according to a 7-point Likert scale. For the reliability of differences, the authors used the Student's t-test at the ascertaining stage when comparing the control and experimental groups for sample equality.

Ethical issues

All respondents gave their consent to participate in the experiment by filling out an online form that was sent to their email addresses. The administration of higher education institutions was informed about the study procedure.

Research limitation

This study was based only on a small number of universities and did not cover specialized institutions with the training in reflective competencies. This research aimed to determine the effectiveness of one particular method; specialized studies of significant factors in the reflection formation have not been conducted.

Results

Table 1 systematizes the results of diagnosing the baseline level of the reflective dialogue in the pedagogical process of the university and the reflective competence of students.

Figures 2 and 3 present the data based on the analysis at the ascertaining experiment stage.

Figures 2 and 3 show two prevailing levels of reflective competencies: middle and low. There are no significant differences in the level of the studied characteristic in the experimental and control groups.

The diagrams clearly show that the baseline level of the reflective dialogue in the pedagogical process of the university and the formation of the students' reflective competence is mostly not high:

– Low level is characteristic of the skills of mastering reflective technologies for organizing interaction (93.6% and 85.2% for the experimental and control groups, respectively).
– Middle level prevails in all other factors of reflective competence: acceptance of the reflective dialogue values – 66% and 66.7%; self-identification (the ability to accept oneself, to see and evaluate oneself from another perspective) – 57.5% and 63%; using the categories of the studied subject module on reflection – 59.6% and 64.8%; reflective thinking experience – 74.5% and 77.8%; possession of interaction skills – 65.9% and 70.3% for the experimental and control groups, respectively. The findings are confirmed by the students' answers to the questionnaires and tests provided. Table 2 shows the results of diagnosing the reflection level according to A.V. Karpov and V.V. Ponomareva.

Analysis of the calculated total score on all scales indicates the predominant middle level of students' reflection (Tables 1 and 2). Figure 4 clearly shows that the majority of both the experimental

Table 1. The results of diagnosing the baseline level of the reflective dialogue in the pedagogical process of the university and students' reflective competence.

		EG		CG	
Competencies under study	Level	N	%	N	%
1	2	3	4	5	6
Acceptance of the reflective dialogue values	low	4	8.5	6	11.2
	middle	31	66	36	66.7
	high	12	25.5	12	22.2
Self-identification (the ability to see, accept, and evaluate oneself)	low	8	17	8	14.8
	middle	27	57.5	34	63
	high	12	25.5	12	22.2
Using the categories of the studied subject module on reflection	low	36	76.6	43	79.6
	middle	11	23.4	11	20.4
	high	–	–	–	–
Reflective thinking experience	low	9	19.1	9	16.7
	middle	35	74.5	42	77.8
	high	3	6.4	3	5.5
Possession of interaction skills	low	7	15	7	13
	middle	31	65.9	38	70.3
	high	9	19.1	9	16.7
Possession of reflective technologies for organizing interaction	low	44	93.6	46	85.2
	middle	3	6.4	8	14.8
	high	–	–	–	–

Note: EG = experimental group, CG = control group

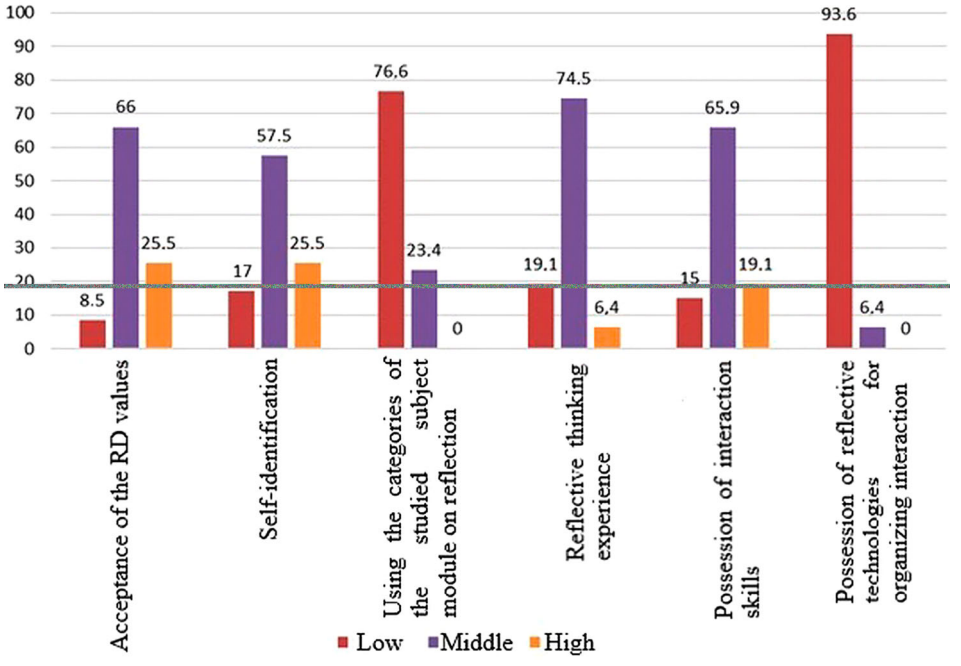

Figure 2. The baseline level of the reflective dialogue in the pedagogical process of the university and the reflective competence in the EG.

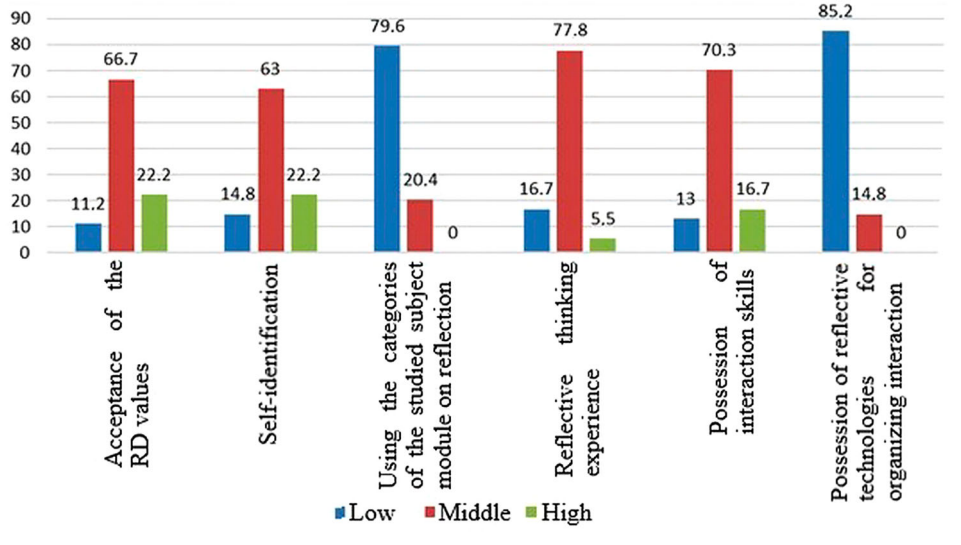

Figure 3. The baseline level of the reflective dialogue in the pedagogical process of the university and the reflective competence in the CG.

and control groups demonstrated a middle reflection level. There was no significant difference between the EG and CG. Thus, the baseline level of students' reflection is predominantly the middle one.

The ascertaining study stage formed the conclusion that the students' professional training should have a theoretical part with the educational blocks "Peculiarities of the reflection formation"

Table 2. The reflection level in the control and experimental groups at the ascertaining experimental stage.

			Levels (experimental group)			Levels (control group)		
	Scale		high	middle	low	high	middle	low
Results by scales	Retrospective reflection	n	10	34	3	6	42	6
		%	21	72	7	11	22	11
	Situational (actual) reflection	n	1	41	5	1	50	3
		%	2	87	11	2	93	5
	Perspective reflection	n	7	36	4	5	44	5
		%	15	76	9	9	82	9
	Reflection of communication and interaction	n	9	34	4	9	40	5
		%	19	72	9	17	74	9

and a mandatory practical part including pedagogical practice, volunteer activities, and interpersonal communication.

The development and implementation of special experimental and pedagogical work were based on the selected educational material, the authentic choice of forms, and methods of work for the reflective dialogue development in the pedagogical process of the university. In the first introductory stage of experimental and pedagogical work, the authors developed and introduced the block "Reflection and reflective dialogue in group counseling" of the discipline "Group counseling" into the educational process of the university and the block "Relationship between reflection and emotional intelligence" of the discipline "Practical work on the development of emotional intelligence" for undergraduate students. The analysis of the developed curriculum shows the need to analyze in detail the key components of the proposed course "Relationship between reflection and emotional intelligence", which, in turn, is focused on the creation of derivative pedagogical concepts. This subject is the basis for other pedagogical disciplines, where a student and a teacher are included in certain pedagogical interactions aimed at developing the skill of reflective dialogue.

The organizational and pedagogical goal of the course is the creation of clear vectors for the future professional self-realization of students due to the active development of their value orientations. Then the researchers developed the training module "Development of students' reflective dialogue in the pedagogical process". Its purpose is to develop reflective dialogue skills, conscious planning of activities, analysis of the activities of fellow students, as well as teachers; the ability to draw conclusions based on the achieved goals and adjust subsequent activities, understanding the individual suitable methods and forms for learning.

Experimental and pedagogical work with students was carried out consistently and was aimed at the development of reflective dialogue in the university pedagogical process and the formation of students' reflective competence. The pedagogical experiment included "slices" to determine the effectiveness of changes in the levels of the required competence. At the end of the formative phase, a control experiment was carried out to explore the level of the students' reflective competence over time; the results are presented below. Table 3 demonstrates the quantitative results from the repeated use of a diagnostic map with the "360 degrees" technology.

Figures 5 and 6 present the data based on the analysis at the experimental stage.

Figures 5 and 6 demonstrate significant changes in the reflective dialogue level in the pedagogical process of the university and the correlating formation of students' reflective competencies over time. There are no significant changes in the level of investigated characteristics in the control group. The findings are confirmed by the results of diagnosing the reflection level according to A.V. Karpov and V.V. Ponomareva (Table 4).

Analysis of the calculated total score on all scales indicates the predominant middle level of students' reflection (Figure 7).

A general analysis of the changes in the reflective characteristics over time with the proposed digital program indicates the platform's effectiveness in the development of a reflective dialogue approach to education.

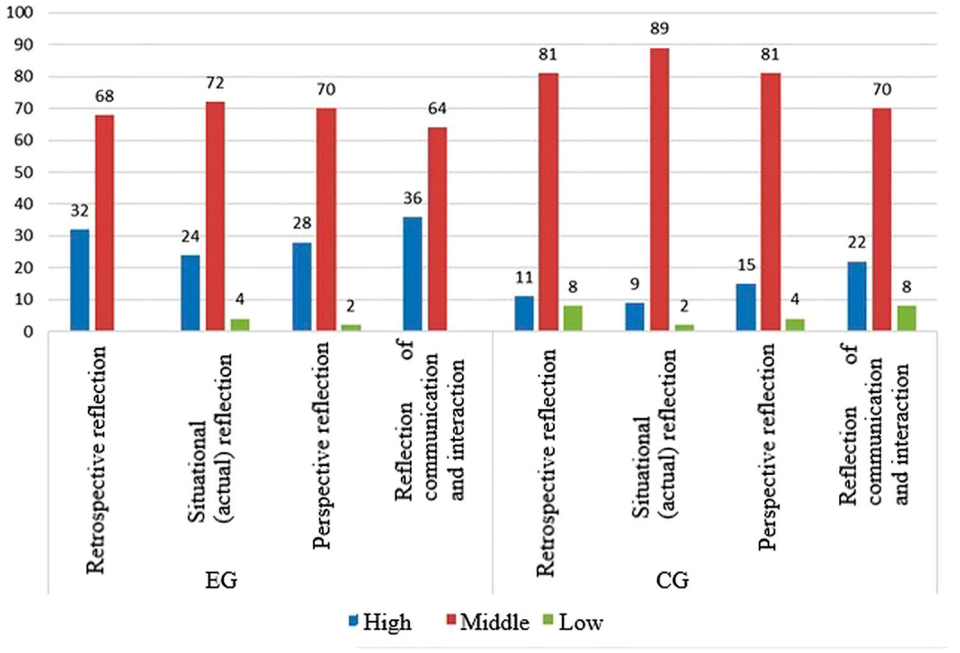

Figure 4. The baseline reflection level according to A.V. Karpov and V.V. Ponomareva in the control and experimental groups.

Table 3. The results of diagnosing the level of the reflective dialogue in the pedagogical process of the university and the reflective competence of students at the control stage.

		EG		CG	
Competencies under study	Level	N	%	N	%
1	2	3	4	5	6
Acceptance of the reflective dialogue values	low	–	–	4	8
	middle	20	43	38	70
	high	27	57	12	22
Self-identification (the ability to see, accept, and evaluate oneself)	low	2	4	6	11
	middle	20	43	35	65
	high	25	53	13	24
Using the categories of the studied subject module on reflection	low	8	17	35	65
	middle	28	60	18	33
	high	11	23	1	2
Reflective thinking experience	low	5	11	7	13
	middle	33	70	41	76
	high	9	19	6	11
Possession of interaction skills	low	1	2	5	9
	middle	32	68	42	78
	high	14	30	7	13
Possession of reflective technologies for organizing interaction	low	7	15	40	74
	middle	26	55	14	26
	high	14	30	–	–

Note: EG = experimental group, CG = control group

Discussion

The use of reflection in the methodological approach to qualitative forms of education contributes to the rejection of the standardization principles in educational paradigms; this contradicts the nature of reflection. De la Croix and Veen (2018) note that a reflective approach requires looking for answers where they cannot be found, using tools that do not discover new ideas, and making

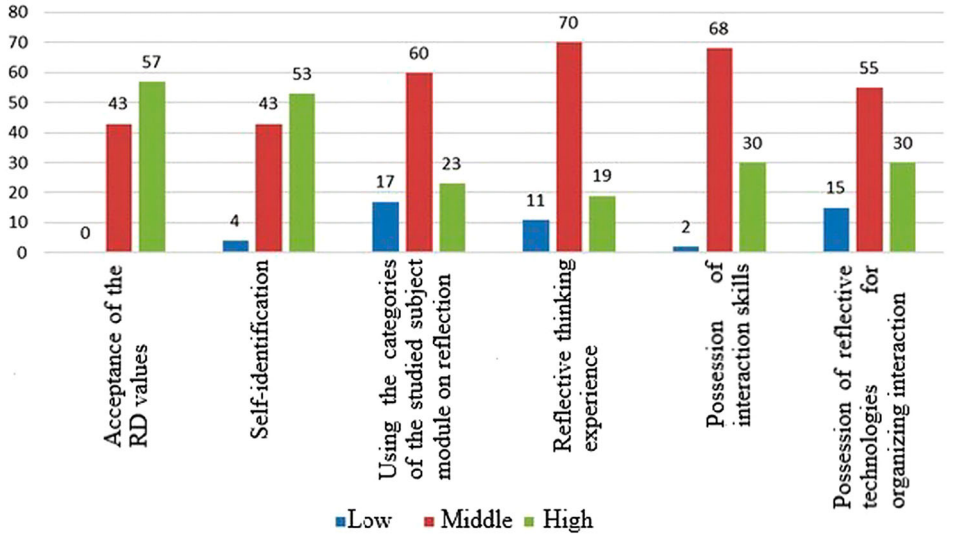

Figure 5. Comparative analysis of the reflective dialogue level in the pedagogical process of the university and the reflective competence in the EG.

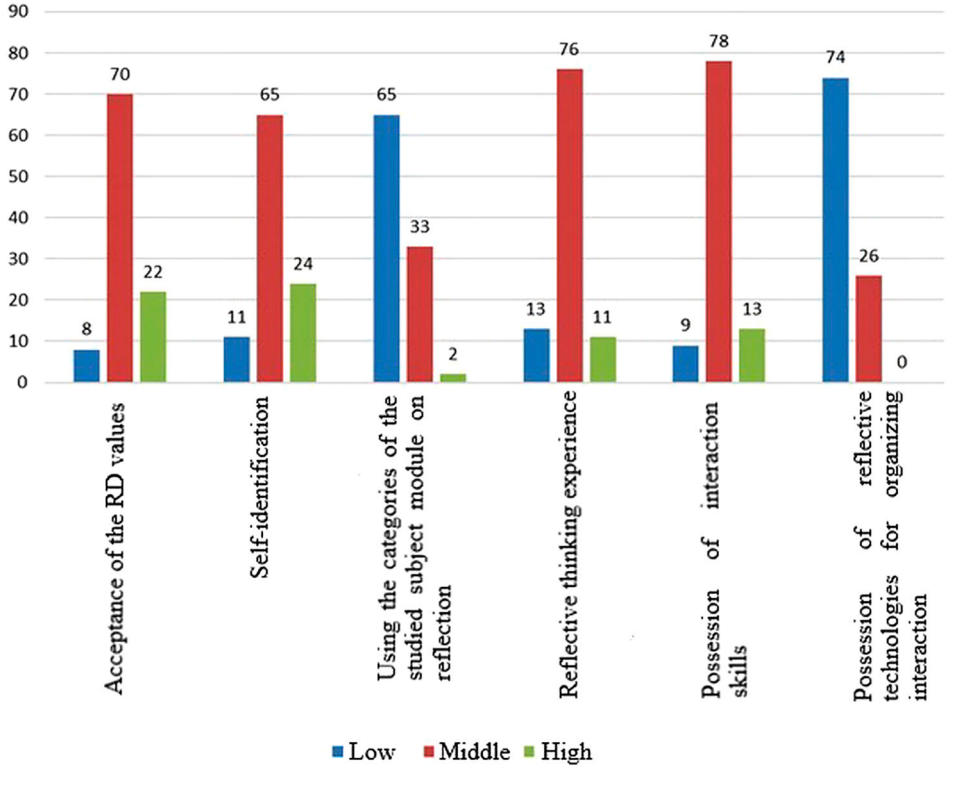

Figure 6. Comparative analysis of the reflective dialogue level in the pedagogical process of the university and the reflective competence in the CG.

Table 4. Reflection level in the control and experimental groups at the experimental stage.

	Scale		Levels (experimental group)			Levels (control group)		
			high	middle	low	high	middle	low
Results by scales	Retrospective reflection	n	15	32	–	6	44	4
		%	32	68	–	11	81	8
	Situational (actual) reflection	n	11	34	2	5	48	1
		%	24	72	4	9	89	2
	Perspective reflection	n	13	33	1	8	44	2
		%	28	70	2	15	81	4
	Reflection of communication and interaction	n	17	30	–	12	38	4
		%	36	64	–	22	70	8

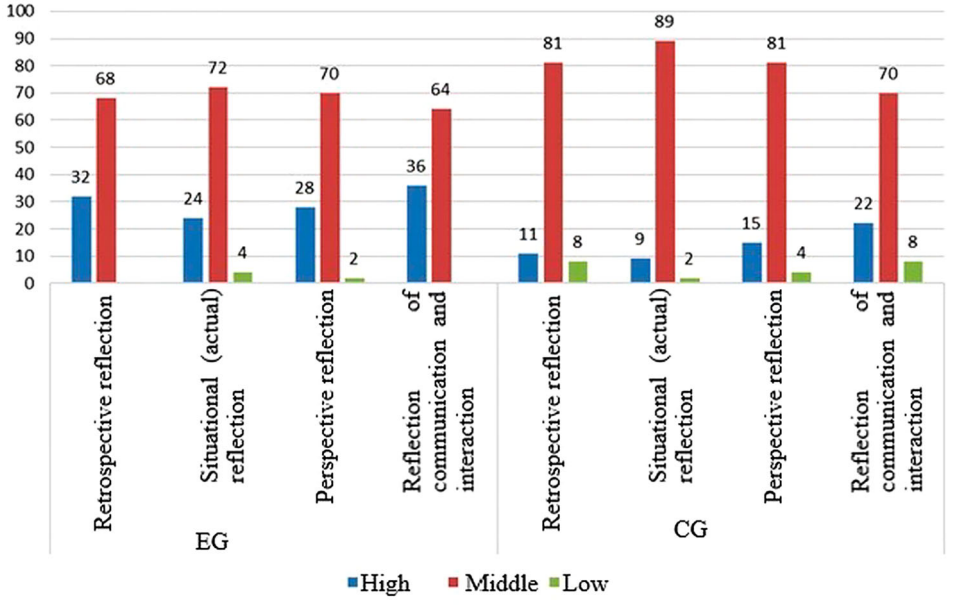

Figure 7. The baseline reflection level according to A.V. Karpov and V.V. Ponomareva in the control and experimental groups at the control stage.

claims about students' thinking that may be unfounded. A mistaken sense of security can be found in the instrumental approach leading to extended checklists. However, if one focuses only on this, one runs the risk of doing the opposite of what reflection should achieve: being genuinely interesting and exploring ourselves and our experiences, leading to learning throughout life (Christian et al., 2021).

The study of student interaction on a reflective dialogical basis has a more favorable effect since a reflective dialogue allows a rethinking of the professional training ensuring its conscious self-regulation within a purposeful reflective dialogue in the pedagogical process of the university for meaningful and positively regulating professional and business relations, continuous development, and self-development (Ayers et al., 2020).

Bell, Robin, and Heather Bell (2020) consider the possibilities of applying reflective practices to improve the future professional climate in various areas of an individual's life. Abuhassna et al. (2020) indicated that student experience, collaboration, interaction, and autonomy positively influenced student satisfaction during the distance study. The related findings were achieved in the current study, which noted the positive impact of the digital platform on students' reflection.

In addition, students' results, memorization, comprehension, and analysis were positively aligned with students' academic achievement.

At the same time, Karnieli-Miller and Neufeld-Kroszynski (2020) point out the specificity of reflective writing, one of the many tools to promote reflective learning. Its aim is to develop reflective thinking skills, self-understanding, and overcoming professional experience. It is a tool for promoting critical thinking, analysis, metacognition, and synthesis, as for developing reading and writing skills in a distance learning environment (Woldt & Nenad, 2021).

On the other hand, distance learning is increasingly becoming an asset in higher education institutions around the world, yet faculty and students are often concerned about their ability to succeed in e-learning environments. Abuhassna et al. (2022) indicate that the effectiveness of the distance learning course structure influenced all aspects of the overall path analysis: student reflection, experience, student-teacher dialogue, and student-student dialogue. Similar conclusions were obtained during the analysis of the educational application (Moodle) for Kazakh students.

Such training programs can be deemed effective due to the increase in both students' and teachers' productivity. Bell and Bell (2020) note that the inclusion of reflective training modules into teacher training programs improves their practice and performance. The experiment demonstrated that the training improved teachers' skills and performance as they reviewed and modified their teaching strategies through reflective practice. However, the teachers were not able to work out all the reflective skills in their practice (Dellaportas et al., 2022).

Conclusion

Experimental work on the development of reflective dialogue in the pedagogical process of the university has provided the conditions for interaction between a teacher and students contributing to the successful formation of their competence: interpersonal communication, theoretical training, and practical training. The findings show a significant improvement in the reflection level: from predominantly middle to high in the experimental group. More than half of the experimental group and one-fifth of the control group improved their reflective skills.

Analysis of the effectiveness of the reflective dialogue implementation in the pedagogical process of the university and the experimental results on the reflective competence development showed significant dynamics in developing the investigated characteristic in the experimental group. This confirms the study hypothesis, as well as its effectiveness and practical significance.

Data availability

Data will be available on request.

Disclosure statement

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References

Abuhassna, H., Al-Rahmi, W. M., Yahya, N., Zakaria, M. A. Z. M., Kosnin, A. B., & Darwish, M. (2020). Development of a new model on utilizing online learning platforms to improve students' academic achievements and satisfaction. *International Journal of Educational Technology in Higher Education*, *17*(1), 1–23. https://doi.org/10.1186/s41239-020-00216-z

Abuhassna, H., Busalim, A. H., Mamman, B., Yahaya, N., Zakaria, M. A. Z. M., Al-Maatouk, Q., & Awae, F. (2022). From student's experience: Does e-learning course structure influenced by learner's prior experience, background knowledge, autonomy, and dialogue. *Contemporary Educational Technology*, *14*(1), ep338. https://doi.org/10.30935/cedtech/11386

Anderson, J. (2019). In search of reflection-in-action: An exploratory study of the interactive reflection of four experienced teachers. *Teaching and Teacher Education*, *86*, 102879. https://doi.org/10.1016/j.tate.2019.102879

Anisimov, O. S. (2010). Development of critical thinking in a future specialist. *Akmeologiya*, *4*, 1–5.

Attard, K. (2020). Understanding the reflective process through self-study: A teacher educator's journey towards continuous professional development. In A. Swennen & E. White (Eds.), *Being a teacher educator* (pp. 27–42). Routledge.

Ayers, J., Bryant, J., & Missimer, M. (2020). The Use of reflective pedagogies in sustainability leadership education—A case study. *Sustainability*, *12*(17), 6726. https://doi.org/10.3390/su12176726

Baxter, L. P., Southall, A. E., & Gardner, F. (2021). Trialling critical reflection in education: The benefits for school leaders and teachers. *Reflective Practice*, *22*(4), 501–514. https://doi.org/10.1080/14623943.2021.1927694

Bell, R., & Bell, H. (2020). Applying educational theory to develop a framework to support the delivery of experiential entrepreneurship education. *Journal of Small Business and Enterprise Development*, *27*(6), 987–1004. https://doi.org/10.1108/JSBED-01-2020-0012

Bethell, J., Aelick, K., Babineau, J., Bretzlaff, M., Edwards, C., Gibson, J. L., Colborne, D. H., Iaboni, A., Lender, D., Schon, D., McGilton, K. S., & McGilton, K. S. (2021). Social connection in long-term care homes: A scoping review of published research on the mental health impacts and potential strategies during COVID-19. *Journal of the American Medical Directors Association*, *22*(2), 228–237. https://doi.org/10.1016/j.jamda.2020.11.025

Brookfield, S. (1995). *Becoming a critically reflective teacher*. Jossey-Bass.

Chan, C. K., & Lee, K. K. (2021). Reflection literacy: A multilevel perspective on the challenges of using reflections in higher education through a comprehensive literature review. *Educational Research Review*, *32*, 100376. https://doi.org/10.1016/j.edurev.2020.100376

Chang, B. (2019). Reflection in learning. *Online Learning*, *23*(1), 95–110. https://doi.org/10.24059/olj.v23i1.1447

Christian, D. D., McCarty, D. L., & Brown, C. L. (2021). Experiential education during the COVID-19 pandemic: A reflective process. *Journal of Constructivist Psychology*, *34*(3), 264–277. https://doi.org/10.1080/10720537.2020.1813666

Dautova, O. B. (2018). *Educational communication. Traditional and innovative technologies: Teaching aid*. KARO.

Davydova, G. I. (2009). *Reflective dialogue in the educational process of the higher educational institution: Doctoral dissertation in pedagogics*. Kazan Federal University.

Davydova, G. I., & Petrov, I. A. (2013). Reflexive technology for the development of students' creative orientation. *Innovatsii v Obrazovanii (Innovations in Education)*, *5*, 108–117.

De la Croix, A., & Veen, M. (2018). The reflective zombie: Problematizing the conceptual framework of reflection in medical education. *Perspectives on Medical Education*, *7*(6), 394–400. https://doi.org/10.1007/s40037-018-0479-9

Dellaportas, S., Stevenson-Clarke, P., Joshi, M., & De Fazio, T. (2022). Reflective practice and learning in accounting education. *Accounting Education*, in press, https://doi.org/10.1080/09639284.2022.2076565

Ellis, G. (2020). Reflective learning and supervision. In L. Briggs (Ed.), *Fieldwork in the human services* (pp. 227–238). Routledge.

Gorski, P. C., & Dalton, K. (2020). Striving for critical reflection in multicultural and social justice teacher education: Introducing a typology of reflection approaches. *Journal of Teacher Education*, *71*(3), 357–368. https://doi.org/10.1177/0022487119883545

Gray, R., & Sanders, C. (2020). A reflection on the impact of COVID-19 on primary care in the United Kingdom. *Journal of Interprofessional Care*, *34*(5), 672–678. https://doi.org/10.1080/13561820.2020.1823948

Karnieli-Miller, O., & Neufeld-Kroszynski, G. (2020). Combining machine learning and human reflective process for teaching communication skills. *Medical Education*, *54*(12), 1093–1095. https://doi.org/10.1111/medu.14391

Mello, L. V., Varga-Atkins, T., & Edwards, S. W. (2021). A structured reflective process supports student awareness of employability skills development in a science placement module. *FEBS Open Bio*, *11*(6), 1524–1536. https://doi.org/10.1002/2211-5463.13158

Mondragon, N. I., Saez, I. A., & Berciano, A. (2021). The undergraduate dissertation as a reflection of education for sustainability and professional identity: The faculty of education of Bilbao. *International Journal of Sustainability in Higher Education*, *22*(6), 1285–1301. https://doi.org/10.1108/IJSHE-09-2020-0346

Naicker, K., & Van Rensburg, G. H. (2018). Facilitation of reflective learning in nursing: Reflective teaching practices of educators. *Africa Journal of Nursing and Midwifery*, *20*(2), 1–15. https://doi.org/10.25159/2520-5293/3386

Piaget, J. (2001). *Studies in reflecting abstraction*. Psychology Press.

Roca, J. B. (2022). Teaching technological forecasting to undergraduate students: A reflection on challenges and opportunities. *Technological Forecasting and Social Change*, *180*, 121684. https://doi.org/10.1016/j.techfore.2022.121684

Rubinshtein, S. L. (2012). *Man and the world*. Piter.

Schmidt, J., & Clawson, M. (2020). *Classroom observation as a reflective process to enhance student learning*. TCU.

Stodter, A., Cope, E., & Townsend, R. C. (2021). Reflective conversations as a basis for sport coaches' learning: a theory-informed pedagogic design for educating reflective practitioners. *Professional Development in Education*, in press, https://doi.org/10.1080/19415257.2021.1902836

Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, *122*, 889–901. https://doi.org/10.1016/j.jbusres.2019.09.022

Waltonen-Moore, S., Stuart, D., Newton, E., Oswald, R., & Varonis, E. (2006). From virtual strangers to a cohesive learning community: The evolution of online group development in a professional development course. *Journal of Technology and Teacher Education*, *14*(2), 287–311.

Wegerit, R. (2007). *Dialogic education and technology: Expanding the space of learning (Vol. 7)*. Springer Science and Business Media.

Woldt, J. L., & Nenad, M. W. (2021). Reflective writing in dental education to improve critical thinking and learning: A systematic review. *Journal of Dental Education*, *85*(6), 778–785. https://doi.org/10.1002/jdd.12561

Zaitsev, A. V. (2019). "Critical thinking" in the philosophical reflection of John Dewey. *Dialogue*, *1*(13), 8–14.