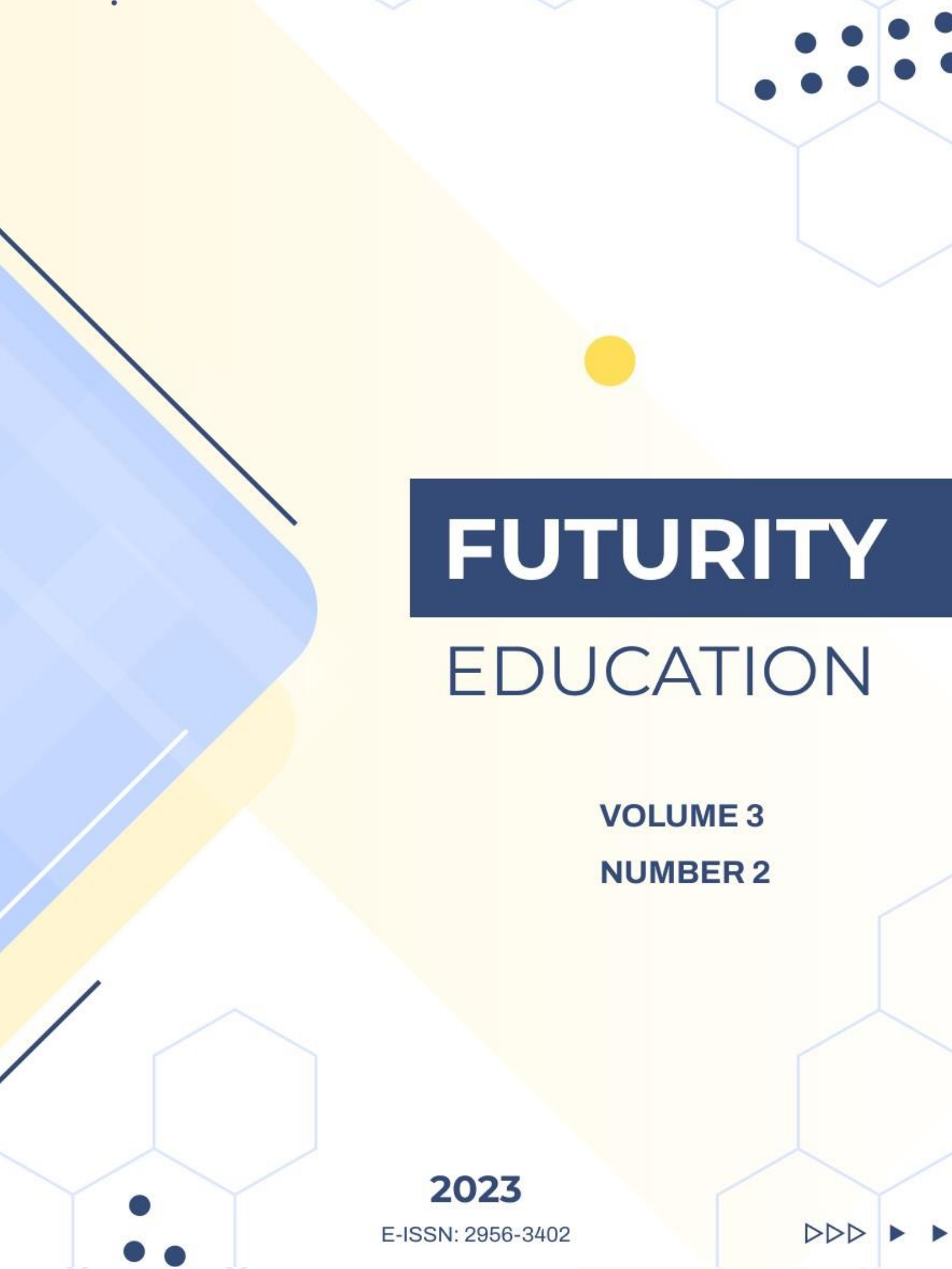




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Political Education in Indonesia: Community Assessment and Preferences for Political Education Conducted by Political Parties

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Abstract: One of the functions carried out by political parties is the function of public political education. Political education is the process of imparting knowledge to the public about state politics and finally implementing it in general election activities. The success or failure of political education carried out by political parties to the public can be seen by the level of community participation in general elections. This study aims to describe people's assessments and preferences for political education conducted by political parties in Indonesia. Descriptive quantitative approaches were used in this research. While testing the hypothesis the Mac Nemar hypothesis on signs and testing changes was used. Based on testing the hypothesis on signs, it was found that more respondents who answered that political education carried out by political parties for the community failed or were not successful were more than respondents who answered that political education carried out by political parties for the community was successful. As an implication, political education carried out by political parties is declared a failure or the function carried out by political parties in conducting political education has

not been carried out properly. Based on the Mac Nemar change test hypothesis, it was found that the calculated chi-squared value was 0.167 and this value was smaller than the khai squared value in table 3.841. So that the null hypothesis is declared accepted and has the implication that there is no change in respondents' preferences after joining a political party.

Keywords: education, elections, political education, political parties, political system, politics

Introduction

The socio-political system in every country, including both developing and developed countries, considers education and politics as two important elements. Both are often seen as separate parts, which have nothing to do with each other. In fact, both are implemented in the process of forming the characteristics of society in a country (Affandi, 2019). These two elements are interrelated in supporting and filling existing institutions, and the educational process cannot be separated from its important role in shaping people's political behavior. This linkage can be seen from the dynamic and close relationship between education and politics itself. This relationship is an empirical reality that has been formed since the development of human civilization and has become the main focus of study by scientists. Education is often used as a medium and a place to instill state ideology or the bones that support the political framework. In western countries, Plato put emphasis in his book titled Republic on the study of the relationship between education and politics, Plato discussed the relationship between ideology and state institutions with the goals and methods of education (Plato et al., 2018).

Plato's opinion about the relationship between education and political structure in his book "Republika" designed an education system that not only produces a correct view, and the correct thinking about future leaders, but also for people who are not prepared to become leaders (Santoso, 1967). Plato's education system was designed to support and improve the social order, but its political characteristics for the clerical curriculum were hidden (hidden curriculum). Opinion of R.S. Peters regarding the education system, all education systems have a certain political characteristic, that these systems are designed to guide children using traditional ways of doing all their activities, so that education must be conservative and support the status quo. Education also leads people to a new world vision that teaches what is good and bad as well as right and wrong which we call normative (Sukarno, 2011). This education provides them with an interpretive framework that enables them to understand the world, make judgments about it, and fill it with innovation (Kadir, 2010).

Society in general still feels uncertainty when discussing politics. People always think of politics as something dirty, evil and scary. So that people do not dare to touch it, let alone take part in it. This should not have happened if the people had realised that in fact they also participated in determining the life of the country, which incidentally was their participation in political life (Rahman, 2018). Azra (in Asrori, 2015) said that when conducting a dialogue on education, the reality found is that the education system cannot be separated from government political policies. Education and politics are two different things, but have main goals that mutually support one another. These two elements are intertwined in the formation of the characteristics of people who live in the country concerned (Istikhrah & Asrinaldi, 2019).

The constitutional mandate in the 1945 Constitution emphasises that education is a means to build the nation within the framework of "national intelligence" and increasing "people's welfare" (Hindun et al., 2021). In the 4th paragraph of the 1945 Constitution there is the sentence "Educating the nation's

life" is a national education goal that describes the ideals of the Indonesian nation to educate and generalise education throughout Indonesia in order to achieve an intelligent national life (Constitution of Indonesia, 1945). Efforts to increase progress are often confronted with the fact that issues of nationality and democracy have been raging in the political arena of government, especially influenced and strongly determined by the role of the political elite and the political participation of citizens. This is reflected in the growth of political parties after the Reformation and the political participation of citizens who play a role in the political system in Indonesia. Political education in the era of government in Indonesia has provided valuable experience and carved historical events that deserve to be used as a foundation in the framework of future national development (Hermawan, 2013).

Political education contains a process of learning and understanding including the rights, obligations and responsibilities inherent to every citizen in the life of the nation and state (Nurdiansyah, 2015). In English, political education is better known as political socialisation. If translated in Indonesian, political socialisation is interpreted as political education. Academic experts also equate the term political education with the term political socialisation, because the experts interpret the two terms almost the same. In other words, political socialisation is a narrow part of political education. Political education is often referred to as political forming or politicking *bildung* (Purnawati, 2019). It is called "forming" because it contains the intention of forming political people who are aware of their political position in society. And it is called "bildung" (formation or, self-education), because this term implies forming oneself with one's own awareness and responsibility to become a political person (Hermawan, 2020).

Political education is very important when the simultaneous elections are to be held in 2024, especially in Indonesia. With the rise of hoaxes and hate speech in society, it sometimes causes people not to think rationally, especially with current and future attitudes that are entering the era of globalisation, more openness, coupled with the flow of information that very fast. From this situation critical thinking of society is needed in order to prepare people who are intelligent in politics, especially in politics in the region (local politics) (Nurdiansyah, 2015). The participation of novice voters can be increased by having a process of political education for voters (Hajad & Ikhsan, 2019).

Political education is very important for nation development and progress. With the existence of political parties that care about conducting political education to citizens or the community, ideal politics will grow, namely the existence of public awareness to support the political system and provide criticism and control of the existing government in Indonesia (Sukarno, 2011). For countries that are independent and sovereign, the existence of political parties is a prerequisite, the state through its representatives who sit in people's representative bodies express opinion. Through political parties, people can realise their right to express opinions about the direction of life and its future in society and as a state. Political parties are a very important component in a democratic political system (Pasaribu, 2017).

Political parties aim to facilitate citizens' political aspirations in legitimate political institutions (Maimunah, 2016). Political parties are producers or 'factories' of party cadres who then through the electoral mechanism of 'representing the people' become politicians in parliament. However, political parties remain as 'main users' of party cadres to realise the political goals of political parties, namely power in the parliamentary arena. Through this relationship, political party cadres and cadres have mutually supportive relationships. However, the relationship between political parties and their party cadres is not purely political. Political parties are crucial instruments in providing political education to

citizens. Political parties have an ideological role to educate the nation's political education (Satria Buana et al., 2021).

Based on the above background, this study aims to provide a description of the public's assessment and preference for political education conducted by political parties in Indonesia. The hypotheses to be tested in this study consist of 2 (two), namely: political education conducted by political parties for the community were successful and the respondents who answered that political education carried out by political parties for the community failed; and there is no change in the success or failure of preferences for political education of political parties for the community.

Research Methodology

Political education for voters is very important and is a priority for all electoral stakeholders and society. Voter education has a double impact both on improving the ethics and culture of democracy in society and on improving the quality of political actors at the parliamentary and executive levels. Linear with what was conveyed by Sigit Pamungkas, that intelligent voter education is expected to give birth to legislators who dare to convey aspirations and are responsible for fighting for the interests of society (Haboddin, 2015). In line with this, according to Faulks (2010), quality elections are highly supported by first-time voters who are rational, educated, and broad-minded and have high standards for the ability of existing elites and political institutions to meet their expectations.

It can be seen from the elections that have been held before (2009, 2014, 2019) where election democratic parties are not a place for intelligent political education for the people. In the context of public politics, the 2009 election was only an arena for transactions and national contracts which were unequal and unfair between the people and politicians. The people offer their voices, while the politicians give abstract (uncertain) promises. Mutual deception between the two parties in transactions is unavoidable, as a result, people who have voting rights become pragmatic and apathetic in this democratic party (Hermawan, 2020). Political education facilities can come from formal and informal institutions. Formal institutions consist of schools or colleges, while informal institutions consist of families, political parties and pressure groups, mass media of all kinds. The implementation of political education in Indonesia still encounters many obstacles because the institutions whose role is to carry out political education for the community have not optimally carried out their role in educating the public politically (Bashori, 2018).

In this study type approach of quantitative descriptive research was used. The sample of respondents consisted of 50 respondents located in Tegal Regency, Pemalang Regency, Tegal City, and Brebes Regency. The sampling technique used random sampling. While the instrument used in this research was a questionnaire. The data analysis technique evaluated the hypothesis testing based on hypothesis testing on signs and the Mac Nemar change test. Hypothesis testing on signs was applied to prove the truth of the hypothesis related to the occurrence of two different conditions after a stimulus was given. Meanwhile, the impact that is created after the stimulus was given cannot be measured through numbers, but only in the form of signs. The sign itself can be a positive (+) or negative (-) sign. The determination of the status of the null hypothesis, in the sense of whether it was accepted or rejected, is based on a comparison between the calculated khai-squared value and the khai-squared value in the distribution table and then aligned with the applicable testing criteria. The magnitude of the calculated khai-squared value can be found by applying the formula

$$x^2 \frac{[(n1 - n2) - 1]2}{n1 + n2}$$

8

Where χ^2 is the chi-squared value, n_1 was the number of differences that were positive and n_2 was the number of differences that were negative.

Meanwhile, the Mac Nemar change test was carried out with the aim of ensuring that a change in state occurred after a certain treatment or stimulus was given to several objects that were sampled. In this method, changes in state or response shown by objects are analysed with the help of a table called a 2 x 2 frequency table. The table is used as a tool because this method is applied to 2 groups of paired samples. When depicted, the outline of a 2 x 2 table is as shown in the following table

Table 1

Table 2 x 2 Mac Nemar Test

	Condition After Stimulus Given	
Circumstances Before the Stimulus Was Given	-	+
+	A	B
-	C	D

Differences in answers are given by giving positive (+) and negative (-) signs for the answers given by respondents. The answer is in the form of a response or attitude towards the object. At the top left of the table cell (from a positive sign to a negative sign) and at the bottom right of the table cell (from a negative sign to a positive sign) are changes to the first and second answers. The formulation of the final conclusion is obtained by performing calculations to determine the chi-squared value, namely:

$$\chi^2 = \frac{[A - (\frac{A+D}{2})]^2}{\frac{A+D}{2}} + \frac{[D - (\frac{A+D}{2})]^2}{\frac{A+D}{2}}$$

Where 2 is a constant, D is a number of objects that display changes in answers from negative to positive, A is a number of objects that display changes in answers from positive to negative, and χ^2 is the calculated chi-squared value.

Research Results

Based on the results of a survey that was conducted on 50 respondents, some data were generated. In order to clarify regarding the respondent, a description of the respondent is given as follows. The following is a description of the respondent's data based on the level of education in this study

Table 2

Description of Respondents by Education Level

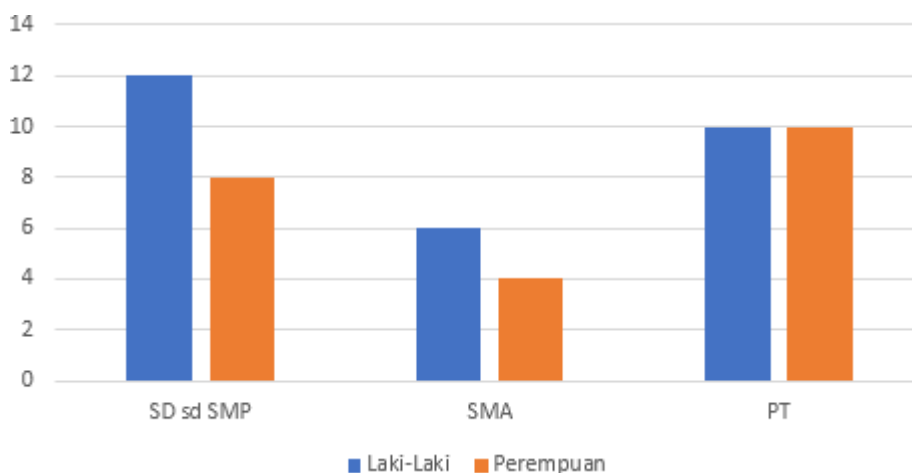
Education Level	Respondent
Elementary School (SD) s/d Junior High School (SMP)	20
Senior High School (SMA)	10
Perguruan Tinggi (High Education)	20
Total	50

Respondents who were involved in this survey by education level included Elementary to Junior High School Education level as much as 40 percent, Senior High School Education level as much as 20 percent of the total number of respondents. As for respondents with tertiary education levels as much as 40 percent of the total respondents.

Meanwhile, the composition of respondents based on gender included, for male respondents, there were 23 respondents or 46% of the total respondents who were included in the survey. Meanwhile, for female respondents, there were 27 respondents or 54%. The description of the respondent can clearly be seen based on the following graph

Figure 1

Composition of Respondents by Gender



The following is the data obtained from the respondents related to testing the hypothesis on the sign

Table 3

Survey Results Regarding Hypothesis Testing on Signs

Respondent Name	Political Education of Political Parties		Respondent Name	Political Education of Political Parties	
Respondent Name	Political Education of Political Parties		Respondent Name	Political Education of Political Parties	
	Succeed	Fail		Succeed	Fail
ReSpNT.1		-	ReSpNT.26		-
ReSpNT.2		-	ReSpNT.27		-
ReSpNT.3	+		ReSpNT.28		-
ReSpNT.4		-	ReSpNT.29		-
ReSpNT.5	+		ReSpNT.30		-
ReSpNT.6	+		ReSpNT.31		-
ReSpNT.7		-	ReSpNT.32		-
ReSpNT.8		-	ReSpNT.33	+	
ReSpNT.9		-	ReSpNT.34		-
ReSpNT.10	+		ReSpNT.35		-
ReSpNT.11		-	ReSpNT.36	+	
ReSpNT.12	+		ReSpNT.37		-
ReSpNT.13		-	ReSpNT.38	+	
ReSpNT.14	+		ReSpNT.39	+	
ReSpNT.15		-	ReSpNT.40		-
ReSpNT.16		-	ReSpNT.41	+	
ReSpNT.17		-	ReSpNT.42		-
ReSpNT.18		-	ReSpNT.43	+	
ReSpNT.19		-	ReSpNT.44		-
ReSpNT.20		-	ReSpNT.45		-
ReSpNT.21		-	ReSpNT.46		-
ReSpNT.22		-	ReSpNT.47		-
ReSpNT.23		-	ReSpNT.48		-
ReSpNT.24	+		ReSpNT.49		-

ReSpNT.25	+		ReSpNT.50		-
			Total	14	36

Based on the obtained and shown in Table 2 data, it is stated that the number with a negative sign is greater than the number of positive signs. Thus, because the number of negative signs is greater, the applied hypothesis testing is the left-sided test. The null hypothesis states that the respondents who answered that political education conducted by political parties for the community were successful and the respondents who answered that political education carried out by political parties for the community failed. Meanwhile, the alternative hypothesis states that respondents who answered that political education conducted by political parties for the community succeeded less than respondents who answered that political education carried out by political parties for the community failed. Therefore, symbolically stated in this study, the formulation of the null hypothesis and the alternative hypothesis in this study are described as follows:

H0 : P Respondents who answered political education of political parties succeeded = P respondents who answered political education of political parties failed

H1 : P Respondents who answered political education of political parties succeeded < P respondents who answered political education of political parties failed

The level of confidence used or applied in this study uses 0.05. In the khai-squared table, the khai-squared value for degrees of freedom is 1 and a significance level of 0.05 is 3.841. As for the criteria for testing this case, the hypothesis testing that is applied is the right-hand side test. So, the testing criterion applied in this case is that the null hypothesis is accepted if

$$x^2 \leq 3,841$$

While the criteria used to reject the null hypothesis is if

$$x^2 > 3,841$$

In the table, the number of positive signs (n1) is 14 and the number of negative signs (n2) is 36. So, based on the formula for calculating the khai-squared value, the calculation of the magnitude of the khaki- squared value is calculated as follows

$$x^2 = \frac{[(n_1 - n_2) - 1]^2}{n_1 + n_2}$$

$$X^2 = \frac{[(14 - 36) - 1]^2}{14 + 36} = \frac{529}{50} = 10,58$$

Through the results of these calculations, the khai-squared value is 10.58. This value is greater than the khai-squared value in the table of 3.841. Thus, the null hypothesis which states that respondents who answered political education conducted by political parties for the community were the same as respondents who answered political education conducted by political parties for the community failed to be rejected. Conversely, the alternative hypothesis which states that respondents who answered political education conducted by political parties for the community were less successful

than respondents who answered political education conducted by political parties for the community failed to be accepted.

After testing the hypothesis on the sign, then the Mac Nemar change test hypothesis was tested. This test was conducted to find out whether there was a change in respondents' preferences after joining a political party.

Table 4

Survey Results Regarding the Mac Nemar Change Test Hypothesis Testing

Respondent Name	Preference		Respondent Name	Preference	
	Before	After		Before	After
RspN.1	Succeed	Succeed	RspN.26	Succeed	Succeed
RspN.2	Succeed	Succeed	RspN.27	Fail	Succeed
RspN.3	Fail	Fail	RspN.28	Succeed	Succeed
RspN.4	Succeed	Succeed	RspN.29	Fail	Succeed
RspN.5	Succeed	Fail	RspN.30	Fail	Succeed
RspN.6	Succeed	Fail	RspN.31	Succeed	Succeed
RspN.7	Succeed	Succeed	RspN.32	Succeed	Succeed
RspN.8	Succeed	Succeed	RspN.33	Succeed	Fail
RspN.9	Succeed	Succeed	RspN.34	Succeed	Succeed
RspN.10	Succeed	Fail	RspN.35	Fail	Succeed
RspN.11	Succeed	Succeed	RspN.36	Succeed	Fail
RspN.12	Succeed	Fail	RspN.37	Fail	Succeed
RspN.13	Succeed	Succeed	RspN.38	Succeed	Fail
RspN.14	Succeed	Fail	RspN.39	Succeed	Fail
RspN.15	Succeed	Succeed	RspN.40	Succeed	Succeed
RspN.16	Fail	Succeed	RspN.41	Succeed	Fail
RspN.17	Succeed	Succeed	RspN.42	Succeed	Succeed
RspN.18	Fail	Succeed	RspN.43	Succeed	Fail
RspN.19	Fail	Succeed	RspN.44	Fail	Succeed

RspN.20	Succeed	Succeed	RspN.45	Fail	Succeed
RspN.21	Succeed	Succeed	RspN.46	Succeed	Succeed
RspN.22	Succeed	Succeed	RspN.47	Succeed	Succeed
RspN.23	Fail	Succeed	RspN.48	Succeed	Succeed
RspN.24	Succeed	Fail	RspN.49	Succeed	Succeed
RspN.25	Succeed	Fail	RspN.50	Succeed	Succeed

Based on the data shown in Table 4, the above hypothesis testing was then carried out on the Mac Nemar change test with the aim of obtaining certainty whether or not there was a change in respondents' preferences after entering a political party on the success or failure of political party-political education for the community. From the data obtained from the respondents, a test was carried out with the steps to test the hypothesis that must be carried out including:

In this study, the put forward hypothesis is: the null hypothesis essentially states that there is no change in the success or failure of preferences for political education of political parties for the community. Meanwhile, the alternative hypothesis states that there has been a change in preference for the success or failure of political party education for the community. So, in this study the null hypothesis and the alternative hypothesis are symbolically formulated as follows:

H0 : Ppreferences = Ppreferences do not change

Ha : P preferences $\neq$ Ppreferences do not change

This study uses a significance level of 0.05 or 5%. Based on the khai-squared table, the khai-squared value with a df or degrees of freedom of 1 and a significance level of 0.05 is 3.841. The khai-squared value obtained in the table is 3.841 which is used as the basis for formulating the test criteria and in the final conclusions. So, the criteria for testing the hypothesis that is applied is that the criteria for the null hypothesis are accepted if

$$x^2 \leq 3,841$$

The null hypothesis criterion is rejected if

$$x^2 > 3,841$$

If the procedure for testing the hypothesis carried out in this study has passed the steps for calculating the khai-squared value, the calculation steps are carried out through the following procedure. The results are shown in the 2 x 2 table briefly below. The following table presents the answers given by the respondents.

Table 5

Changes in Respondent Preferences

	The state of preference after entering a political party	
The state of preference before entering a political party	Fail	Succeed
Succeed	13	25
Fail	1	11

The next step, based on the data shown in Table 9. The magnitude of the chi-squared value is calculated by applying the following formula. In the conducted research, the following is the khai-squared value:

$$x^2 = \frac{[A - (\frac{A+D}{2})]^2}{\frac{A+D}{2}} + \frac{[D - (\frac{A+D}{2})]^2}{\frac{A+D}{2}}$$

$$x^2 = \frac{[13 - (\frac{13+11}{2})]^2}{\frac{13+11}{2}} + \frac{[11 - (\frac{13+11}{2})]^2}{\frac{13+11}{2}} = \frac{1}{12} + \frac{1}{12} = 0,167$$

Based on the results of calculations that have been done before, the magnitude of the khai-squared value is 0.167. This value is smaller than the khai-squared value in table 3.841. Therefore, the null hypothesis which states that there is no change in preferences for the success or failure of political education for political parties for the community is accepted. While the alternative hypothesis which states that there is a change in preference for the success or failure of political education for political parties for the community is rejected.

Discussion

The supporting arguments in political education occupy a very important place in politically literate individuals formation. The supporting arguments can determine the nature of their perceptions of politics and their reactions to a number of occurring political phenomena. In general, politics can lead the community, both the intellectual community and the political community, to become more mature and orderly in the life of society, nation and state.

Political education is a process of awareness and maturity from citizens, up to the citizens of the city, province or country, school residents, organisations, or people. Citizens are not elements of the masses, but are active members in an organic body. If the analogy is that the members and the body are healthy only if both are healthy, then the members must be aware of their constructive contributions, both those who approve and those who denounce and even those that are against infections in the body (Budianto, 2017).

The goal of political education is the political maturity that is willing to assume responsibility for the public interest at different levels (local, communal, national). Political education must take place in an atmosphere of experiencing freedom and bearing the consequences of its decisions. Political education must be distinguished from socialisation as a process of internalising patterns of social behavior, which prepares young people to behave according to what society expects. Socialization that starts in the family can support education toward political maturity (critically responsible citizenship) but can also hinder this process if society adheres to social norms that uphold conformism (conformism) alone.

One of the carried out functions is the function of public political education. Political education is the process of imparting knowledge to the public about state politics and finally implementing it in general election activities. The success or failure of political education carried out by political parties to the public can be seen by the level of community participation during general elections, the fewer people who abstain, the more successful political parties are in conducting political party education to the public. This is because political party education is basically forming and growing individual political orientation (Elisa, 2016). Article 31 of Law of the Republic of Indonesia number 2 of 2011 states that: Political party education aims to: First, to increase awareness of people's rights and obligations, in society, nation and state life. Second, to increase political participation and community initiatives in society, nation and state life. Third, to increase the independence, maturity, and to build a national spirit in order to maintain national unity. Where political education is carried out to build an ethical and political culture that is in accordance with Pancasila. Furthermore, Article 34 paragraph (3a) explains that: in the implementation of political education, political parties receive financial assistance sourced from the State Revenue and Expenditure Budget / Regional Revenue and Expenditure Budget which is given proportionally to political parties that get seats in the People's Legislative Assembly, Council Provincial People's Representatives, whose calculation is based on the number of acquisition votes. Prioritized financial assistance to conduct political education for members of political parties and the public. Political party education must be carried out by political parties to the public considering that many people are still unfamiliar with politics.

Some people even are afraid to be a part of politics. It's not in vain, this happens because people don't understand and are aware of politics itself. Politics is actually not scary and activities that bring each other down. Precisely with the existence of politics which is actually able to make the situation stable both in terms of security and national defense. If properly used, politics will also have a positive impact on the life of the nation and state. But the existence of a paradigm in society makes politics considered something scary and rarely anyone wants to understand and understand politics itself.

Political education cannot be separated from the citizenship education. Political parties through Law Number 2 of 2011 as a change from Law Number 2 of 2008 concerning Political parties have the function of carrying out political education centered on party and community cadres with an emphasis on content on the rights and obligations of citizens in building ethics and culture politics in the life of the nation and state. However, political education carried out by political parties is very vulnerable to conflicts of interest which are influenced by the interests of the political parties themselves. On the other

hand, most of the implementation of political education in Indonesia is carried out by political parties only sporadically at the time of general elections, both at the national and regional levels (Hardian et al., 2021).

The functions of political parties as stated in the Law of the Republic of Indonesia Number 2 of 2011 concerning political parties, states that political parties have a function in carrying out or providing political education. Political parties are a means to make the wider community understand more about politics, especially how to make Indonesian citizens aware of their rights and obligations in the life of society, nation and state. The increase in the number of political parties in Indonesia should ideally have the consequence that society has broader insights on matters related to democratic freedoms. However, until now the role of these political parties in providing political education to the public has not been fully felt (Hindun et al., 2021).

When the election implementation moment takes place, the existence of political parties very clearly voices the interests of the state and the people, but when that moment ends, their responsibilities also end. Supposedly the function of political parties is to provide political education to broad constituents. There is no time limit for the implementation of political education for constituents, either before the election or after the election, as during the period of gaining people's support (Nadir & Wardani, 2019). Regarding the education provided to the public in Indonesian political life, the function of political parties faces many obstacles and challenges which have yet to be fully resolved holistically. The image of political parties that has been embedded in the perceptions and paradigms of society is the toughest challenge for political parties. This bad image is created as a result of bad or improper actions that have been carried out by some members of political parties in the form of corruption. Members of political parties in Indonesia are often entangled in legal problems due to corruption.

Conclusions and Implications

The function to provide political education among the public is carried out by political parties. Political education will be successful if most of the people in the area are able to participate in politics and in decision making. Community participation in politics, in fact, can be seen at the time of direct general elections, both in general elections. The higher the participation rate and the lower the abstentions rate in these activities, it shows that political parties are successful in carrying out their functions in providing political education to the public. Based on the hypothesis testing on the sign, it was found that the calculated chi-squared value was 10.58 and this value was greater than the chi-squared value specified in the table of 3.841. So that the null hypothesis is declared rejected and the alternative hypothesis is accepted. Thus the answers to respondents who responded that political education conducted by political parties for the community failed or were not successful were more than respondents who answered political education carried out by political parties for the community were successful. As an implication, political education carried out by political parties is declared a failure or the function carried out by political parties in conducting political education has not been carried out properly. Based on the Mac Nemar change test hypothesis, it was found that the calculated chi-squared value was 0.167 and this value was smaller than the chi-squared value in table 3.841. So that the null hypothesis is declared accepted and has the implication that there is no change in respondents' preferences after joining a political party.

Suggestions for Future Research

This investigation suggests other studies to use hypothesis testing with different methods and be more able to dig deeper related to political education carried out by political parties. For further research related to political education study, it is recommended to conduct research using mixed methods in order to achieve deepness, especially related to the implementation of the application of political education. Research questions that might be explored are related to a formula finding or form

of implementing effective political education in society. Furthermore, it is also necessary exploring through research by applying hypothesis testing related to how political parties which incidentally are the spearhead in carrying out political education are able to effectively precisely, and always continuously carry out their functions. Political education research cannot be separated from finding a model of implementing political education as a public policy owned by the government as an implementation model that is elegant and acceptable to society at large.

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Detected Affect During Online Mathematics Learning Mediate Self-Report Motivation Changes: Examining a Motivation-Affect Regulation Model

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Abstract: This study investigates relationships between detected affect during online learning and self-reports concerning motivational constructs in mathematics. Students reported their self-concept, interest, and values in mathematics before and after learning mathematics on an online intelligent tutoring system for one academic year over the autumn and spring semesters. Students' experiences of engaged concentration, confusion, frustration, and boredom were detected using log files from the system. The participants included over 8,000 2nd- to 8th-grade students in the United States who used an intelligent tutoring system, Reasoning Mind, during the academic year of 2017-2018. Path analyses with mediating effects indicate that students initially perceiving high self-concept are less frustrated in both autumn and spring. Students interested in mathematics experience initial disengagement and later confusion in online mathematical problem-solving. This result calls for cross-platform support from teachers and system designs, especially for students interested in traditional mathematical teaching and learning. For theory, this study posits the Motivation-Affect Regulation

(MAR) model, highlighting the mediating effects of motivation effect. Results find that the earlier self-concept can be mediated by fewer frustrations in online learning and lead to later self-concept. Interest triggers early disengagement and late confusion during online learning. Value is not mediated by affect. In methodology, structural equation modelling with mediating models offers opportunities to investigate more complex relationships when common measures are collected across time. Both offline pedagogical designs and online learning system designs need to consider the gaps between different formats of learning. Students with a high interest in learning mathematics in real classrooms may fail to adjust themselves easily to online mathematical problem-solving and experience disengagement in the early stages (one semester) and confusion in the stages (after one semester).

Keywords: affective states, intelligent tutoring system, mathematics learning; mediating effects, online learning.

Introduction

Traditionally, mathematics education researchers and educational psychologists use self-report questionnaires, scales, or (oral or written) text to study attitudes, beliefs, emotional responses, or motivation (Blikstein & Worsley, 2016; Gomez-Chacon, 2000; Hannula, 2002; McLeod, 1994; Pintrich, 2003). For topic-oriented methods, one of the most traditionally, perhaps also widely, used self-report tools to study affect is Likert-type scales for domain-specific learning (e.g., mathematics) (D'Mello et al., 2017). Multimodal data with learning analytics and personalised artefacts elect as suitable process-oriented methods (Blikstein & Worsley, 2016). Among the diverse multimodal methods, even though the self-report, the learner output, or physical measures are useful tools (Pachman et al., 2016), the advance of educational technology gives birth to real-time affect (automatically) detected by machine learning algorithms using online, behavioural log-file data, which appear to be the most efficient method. Besides, both self-report motivation and detected affect are related to achievement in theory (McLeod, 1994) and empirical studies (Marsh & Hau, 2004; Wang & Baker, 2018). The self-report and automatically detected measures may compensate each other. The self-report measures are more based on conscious expressions (e.g., stating "I like mathematics.") and detected measures are more based on unconscious physical behaviour (e.g., clicking on hints when failing to solve problems on an online learning system). This further evidences criterion validity for both the self-report affect and the detected affect.

This study is exploratory in nature and related to three fields: mathematics education, psychology, and educational technology. The term use of affect-related constructs appears to be different in these three fields. This study chooses to use 'motivation' to represent "domain-specific non-real-time affect regarding mathematical learning" (i.e., topic orientation) and 'affect' to represent "the real-time affect during mathematical problem-solving" (i.e., process orientation) (D'Mello & Mills, 2014). In terms of methodology, this study focuses on (offline Likert-type scale) "self-report motivation" and (online automatically) "detected affect."

Relationships between online behaviours and self-reports have been an emerging research field in learning analytics (van Halem et al., 2020). However, the past studies on longitudinal, interactive relationships between the self-report motivation and the detected affect appear to only explore their simple relationships (i.e., correlations) (a relevant study omitted for blind review, 2018). This study attempts to investigate their relationships by fully utilising a longitudinal, experimental design: the pre-test self-report motivation, the detected affect during online learning in the first and second semesters,

and then the post-test self-report otivation (cf. Model 1 in Figure 2). This design offers an opportunity to investigate the longitudinal development of both self-report motivation and detected affect, and their interactions overtimes.

Research Problem

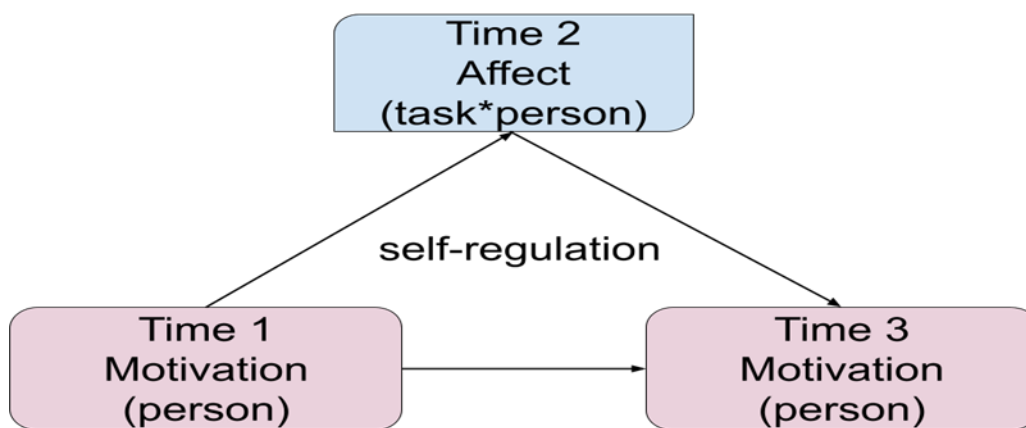
During learning, students may regulate their person-level motivation and situation-level affect (Efklides, 2011). The person level is the trait-like, general, or metacognitive knowledge (of person/self, tasks, and strategies), affect, and motivation. This is normally a top-down process. Motivation (at the person level) plays a role in affect during problem-solving situations (at the person*task level). Affect in turn predicts a later academic (e.g. language) performance (Gillet et al., 2013).

The task person level includes explicit knowledge, conscious analytic process, and unconscious process. All these directly relate to behaviour during hands-on, online task processing. This is a bottom-up process. Affect during problem-solving “updates” motivation (Baars et al., 2017) through the process of “feedback” (Efklides, 2011, p. 20). The use of “update” implies that affect at the task person level rewrites motivation at the person level after a timely experience related to motivation.

The bi-direction motivation effects and the mutual affect suggest a reciprocal relationship between motivations and affect over time. That is, motivation impacts affect and the affect updates motivation, which per se is a self-regulated learning (SRL) process. Figure 1 hypothesizes an SRL process as the reciprocal relationship between motivation (at the personal level) and affect (at the task personal level). This motivation-affect regulation (MAR) model serves as the theoretical basis of this study.

Figure 1

The Motivation-Affect Regulation (MAR) Model



Source: author own development

Research Focus

Diverse Constructs of Motivation. Different types of motivation such as self-efficacy or competence beliefs (self-concept), control beliefs, interests, values, and goals are identified in Educational and psychological researches (Pintrich, 2003). Among diverse types of motivation, the self-concept is mostly researched, perhaps due to its strong relationships with achievements (Marsh & Hau, 2004). The self-concept has (meta) cognitive, motivational, and affective characteristics in the “metacognitive and affective model of self-regulated learning” (the MASRL model) (Efklides, 2011).

The interest and value are part of motivation or affect in the MASRL model (Efklides, 2011). The two constructs are related to course or career choices (Cerinsek et al., 2013; Maltese & Tai, 2010).

Although the interest and value share some commonality, if distinguishing them deliberately, the interest is a major part of intrinsic motivation in response to the subject per se (e.g., mathematics and science) or the temporary situation (e.g., pleasant learning materials and game-based learning) (Høgheim & Reber, 2015). The value, on the other hand, focuses on 'extrinsic motivation', responding to social appraisals (e.g., reputable colleges and higher-paid jobs) (Cerasoli et al., 2014). Therefore, these three constructs are the focused self-report motivation in this study.

Longitudinal Relationships of Motivation. The knowledge of longitudinal relationships within self-report motivation may provide insight into its longitudinal relationship with detected affect. Researchers on self-report motivation often use structural equation modelling (SEM) algorithms to examine their longitudinal relationships. The longitudinal relationships are normally stronger for the same motivation measures lasting over time (i.e., parallel paths) than for different affective states (i.e., cross paths). For example, prior interest and self-concept predict their respective later ones (parallel paths betas = 0.51 to 0.57) better than they predict each other (cross-path betas = 0.04 to 0/12) (Marsh et al., 2005). This pattern also occurs for students' prior digital learning preference, wish for digital schoolwork, and schoolwork engagement to predict their later ones over three years of middle school (parallel paths betas = 0.48 to 0.56) (Hietajärvi et al., 2020). The cross-paths from digital learning preference of previous years (grades 7-8) to predict the next years school engagement (years 8-9) are much smaller (cross-path betas = both 0.15) or non-significant.

Diverse Constructs of Detected Affect. The detected affect slightly corresponds to the emotional constructs (e.g., frustration) of affect in mathematical problem-solving (McLeod, 1994). In order to promote adaptive teaching, intelligent tutoring systems aim using diverse data sources and machine learning algorithms to (automatically) detect learners' affect.

The diverse data sources include learners' dialogues with online pedagogical agents, body posture through pressure (for the back and seat) on a sensor, user behavioural log-file data, human judges, and synchronous observation (D'mello & Graesser, 2007; Ocumpaugh et al., 2015). The machine learning techniques (e.g., feature engineering and predictive algorithms) normally map the physical, text, and log- file data to human judgment or observations to define and finally automatically detect affect. The detected constructs include the affect (e.g., anger, engaged concentration, and surprise) or behaviours (e.g., being off-task and gaming the system) (Baker & Rossi, 2013). D'Mello's (2013) the meta-analysis on affect, learning, and technology reveals that the most researched affective constructs are engaged in the concentration/flow, boredom, confusion, and frustration; besides, engaged concentration/flow, boredom, confusion are the most frequently occurring affective constructs, which also the focused detected affective constructs of this study.

Longitudinal Relationships of Detected Affect. Few studies investigate pure longitudinal relationships of detected affect. The studies to date appear to focus on linking detected affect to specific online learning systems or problem-solving contexts. For example, boredom reduces slightly from early to later online learning stages in a personalised, self-paced system. Engaged concentration leads to confusion when cognitive disequilibrium occurs, which further may link to frustration and then boredom (if a failure occurs), found by self-report methodology for online learning (D'Mello & Graesser, 2012). Confusion and frustration rise while studying worked examples, prompting students to correct, compare and explain errors (Richey et al., 2019). This leads to better learning gains, although confusion

and frustration are negatively related to pre-test, post-test, or delayed post-test achievements in mathematics.

Longitudinal Relationships between Self-Report Motivation and Detected Affect

Relatively few studies focus on relationships between self-report motivation and detected affect. Following a similar research design to this study (pre-test motivation survey, one-year online learning (with detected affect), and post-test motivation survey), correlation analysis finds that self-concept relates to student learning outcomes and behaviours (e.g., correctness, completion time, and actions) more than interest and value (Slater et al., 2018). Another study uses middle school students' detected affect in the ASSISTments system to relate to their high-school self-report motivation (Ocumpaugh et al., 2016).

Correlation analysis finds that STEM career self-efficacy positively relates to engaged concentration, negatively to confusion, and has no significant relationship with either boredom or frustration. STEM career interest has a negative correlation with confusion but non-significant correlations with engaged concentration, frustration, and boredom.

These studies appear to use correlational analysis only, failing to take into account time, which has been embedded in the data structure. This study aims to supplement this research gap by considering time as a structural issue examined by the SEM methodology.

Research Aim and Hypotheses

A special form of longitudinal relations is mediating effects. Mediating effects are popularly used in psychological research because mediating effects explain psychological phenomena focusing on processing (Chiu, 2022). Using the mediating effect methodology can partially assess the effectiveness of an intervention (e.g., the detected affect in online learning in this study). Three models, therefore, are formulated to examine the mediating effect. To explain using this study's measures and follow the conventional use of effect notations (Baron & Kenny 1986), a mediating effect is verified if meeting the following two conditions;

1.The later (post-test) motivation is impacted by its earlier (pre-test) motivation. In Figure 2, this is represented by the path c_0 in Model 0.

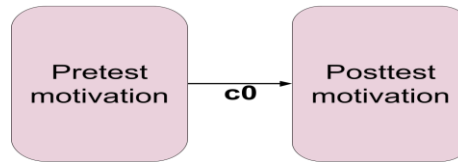
2.When adding a mediator (e.g., affect in Model 1 and Model 2 of Figure 2), the impact of an earlier motivation on its later one reduces (i.e., $c_1 < c_0$; $c_2 < c_0$).

Three popular algorithms to investigate mediating effects are regression (Shrout & Bolger, 2002), multilevel analysis (Kenny et al., 2003), and path analysis of SEM methodology (Preacher & Hayes, 2008). This study chose to use SEM because one single SEM analysis can obtain the three path parameters in the mediating models directly (i.e., A and B in the Models 1-2 of Figure 2).

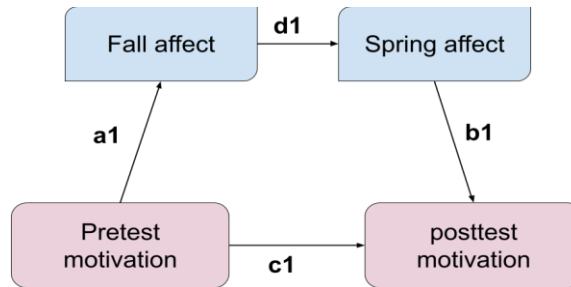
Figure 2

The Three Hypothetical Models

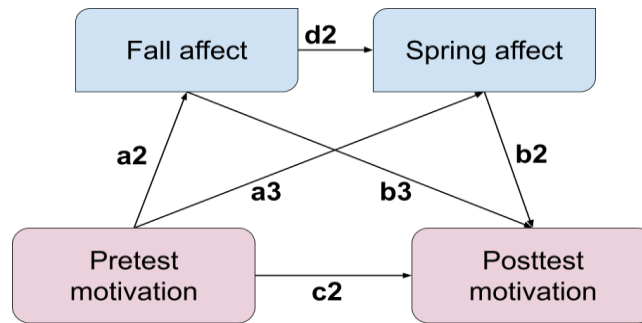
Model 0



Model 1



Model 2



Note. Model 0 is to set the scene that earlier motivation predicts the later motivation, for comparison with Model 1 and Model 2. Model 1 and Model 2 examine the mediating effect of affect on motivation change, the focus of this study.

Another reason for using SEM is that this study uses one mediator occurring at two time points (i.e., detected affect in fall and spring; Figure 2). Past studies normally use one mediator or several parallel mediators (Preacher & Hayes, 2008). Placing one mediator occurring at two time points allows an opportunity to investigate the following effects simultaneously.

1. Direct effects of prior motivation on later one (c_0 , c_1 , and c_2), prior motivation on autumn-semester affect (a_1 and a_2), and spring-semester affect on later motivation (b_1 and b_2).

2. Direct effects of autumn-semester affect on spring-semester affect (d_1 and d_2). 3. Mediating effects of both fall affect and spring one ($a_1 \cdot d_1 \cdot b_1$ and $a_2 \cdot d_2 \cdot b_2$).

4. Direct effects of prior motivation on spring affect (a_3).

5. Mediating effects of spring affect from prior motivation to later one ($a_3 \cdot b_2$). Effects 2-5 appear to be new in the literature.

Conceptually, this study aims to test the three models in Figure 2 for the different constructs of self-report motivation and detected affect, separately.

Model 0. Early motivation predicts later one.

Model 1 (concise model). Student affect over two phases (fall semester and spring semester) mediates the effect that early motivation predicts later one.

Model 2 (full model). The detected affect of both phases mediates the effect that early self-report motivation predicts later one.

Research Methodology

General Background

Participants and Data Source. The participants included over 8,000 2nd- to 8th-grade students in the United States who used an intelligent tutoring system, Reasoning Mind, during the academic year of 2017-2018 (including fall and spring terms) (Ocumpaugh et al., 2013). All the users of the system were included and so no sampling methods were used. The students filled in an online survey about three motivational constructs (self- concept, interest, and value). This study was not preregistered and was a secondary analysis of identified data, which were exempt from ethics committee review in both the countries of the original researchers and the author.

The system was designed for pre-K through grade 7 students to learn mathematics, utilizing a story- based curricular design and offering opportunities for a blended learning pedagogy. Teachers could use the system to provide students with self-paced, personalized learning experiences in a virtual city. A rewarding system provided students with game-based problem-solving experiences. A pedagogical agent guided students through the virtual city and learning processes. The learning modes in the system included guided study, solving additional related problems for mastery, collaborative games, and summative assessment. Students spent most of their time on guided study, with a sequence of mathematical objectives and problems of different levels of difficulty. Teachers could walk around the classroom to work with individual students or groups. The system also provided homework print for students to practice problems based on their prior achievements diagnosed by the platform.

Self-Report Motivation for Mathematical Learning. Students reported their motivations for mathematical learning on three scales (factors or constructs): self-concept (or concept), interest, and value. Each subscale has four items (Table 1).

Table 1

The Survey Items and Factor Loadings by Confirmatory Factor Analysis

Items	Factor Loadings
Concept (or Self-Concept)	
1. I would like math more if it wasn't so hard.	0.644
2. I make a real effort in math, but it seems harder for me than for other students.	0.640
3. Nobody's perfect, but I'm just not good at math.	0.614

4. Some topics in math are just so hard that I know from the start I'll never understand them.	0.676
Interest	
1. It is important to me to be a good mathematician.	0.661
2. I enjoy working on math problems.	0.708
3. Math is one of the things that is important to me personally.	0.740
4. I would even give up some of my spare time to learn new topics in math.	0.511
Value	
1. Math will help me in my daily life.	0.701
2. I need math to learn other subjects.	0.571
3. I will need math to get into college.	0.587
4. I will need math to get the job I want.	0.645

Note. The scale for self-concept (or concept) is 1 = Not at all like me to 4 = exactly like me; the scale is reversed coded in the later analysis because all the items are negative wording. The scale for interest is 1 = Not at all like me to 4 = exactly like me. The scale for value is 1 = strongly disagree to 4 = strongly agree.

Students were surveyed at the start and end of the school year. As such, the measure names in this study are added a prefix “pre” to represent a pre-test measure (e.g., pre concept) and “post” to represent a post-test one (e.g., post interest). These measures are given in Table 2 in items 1-6.

Table 2

Means, Standard Deviations (SDs), and Correlations Between the Measures

measures	mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1.preConcept	2.493	0.830													
2.preInterest	3.148	0.693	0.244												
3.preValue	<u>3.467</u>	0.501	<u>0.017</u>	0.503											
4.postConcept	2.575	0.861	0.501	0.219	<u>0.042</u>										
5.postInterest	3.030	0.749	0.212	0.594	0.358	0.246									
6.postValue	<u>3.453</u>	0.511	0.121	0.354	0.416	<u>0.041</u>	0.575								
7.EngagementFall	0.715	0.157	<u>0.04</u>	-0.092	<u>-0.01</u>	<u>-0.059</u>	-0.142	<u>-0.037</u>							
8.ConfusionFall	0.023	0.033	-0.101	<u>0.001</u>	<u>-0.019</u>	<u>-0.011</u>	<u>0.026</u>	<u>-0.031</u>	-0.689						
9.FrustrationFall	<u>0.008</u>	0.011	-0.08	<u>0.057</u>	<u>-0.018</u>	<u>-0.063</u>	0.085	<u>0.031</u>	-0.407	0.192					
10.BoredomFall	0.106	0.053	-0.111	<u>0.015</u>	<u>-0.051</u>	<u>-0.064</u>	<u>0.058</u>	<u>-0.002</u>	-0.547	0.120	0.504				
11.EngagementSpring	0.741	0.141	<u>0.076</u>	<u>-0.036</u>	<u>0.008</u>	<u>-0.021</u>	<u>-0.059</u>	<u>0.007</u>	0.718	-0.504	-0.380	-0.479			

12.ConfusionSpring	<i>0.010</i>	0.021	<u>0.002</u>	<i>0.079</i>	<u>0.024</u>	<u>0.046</u>	<i>0.099</i>	<u>0.013</u>	<i>-0.442</i>	<i>0.437</i>	<i>0.093</i>	<u>0.078</u>	<i>-0.378</i>		
13.FrustrationSpring	<u>0.008</u>	0.013	<i>-0.171</i>	<i>-0.04</i>	<u>-0.041</u>	<i>-0.108</i>	<u>-0.007</u>	<u>0.031</u>	<i>-0.350</i>	<i>0.290</i>	<i>0.313</i>	<i>0.286</i>	<i>-0.363</i>	<u>0.061</u>	
14.BoredomSpring	<i>0.114</i>	0.075	<i>-0.199</i>	<u>-0.025</u>	<u>-0.051</u>	<i>-0.092</i>	<u>0.03</u>	<u>-0.034</u>	<i>-0.638</i>	<i>0.463</i>	<i>0.393</i>	<i>0.524</i>	<i>-0.724</i>	<i>0.182</i>	<i>0.421</i>

Note. The underlined figures are not significant at $p < 0.05$. Italic (green) figures indicate their direction and significance support the prediction that same-valance measures have positive correlations, and bold (red) ones violate. The bold, italic (blue) means are different between two times in the same measure (e.g., preConcept is different from postConcept).

After the self-report scales were initially designed, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were performed to select proper items. Using both EFA and CFA is a recommended practice for developing psychological scales (Morin et al., 2017). Participants' responses were coded to let higher scores represent higher degrees in the meaning of the constructs. Next, based on the EFA and CFA results, mean scores of the items belonging to the same factors were calculated and used to examine the hypotheses. The following describes the three phases of scale development.

Initial Design. Four subscales were initially developed on the basis of related literature (Marsh et al., 2005; Ryan & Ryan, 2005). In total, there were 18 items.

Self-concept had five items (e.g., "I would like math more if it wasn't so hard.") with a scale of 1 = *Not at all like me* to 4 = *exactly like me*.

Class interest had four items. Two problems asked for the importance of learning math (e.g., "How important is it for you to learn a lot in math classes?") with a scale of 1 = *Not at all important* to 5 = *very important*. Two problems asked for opinions (e.g., "How much do you look forward to math classes?" with a scale 1 = *Not at all* to 5 = *very much*. All items were deleted after item selection (the next section).

Domain interest had five items (e.g., "I enjoy working on math problems." Its scale is 1 = *Not at all likeme* to 4 = *exactly like me*).

Value comprised four items (e.g., "Math will help me in my daily life.") with a scale of 1 = *strongly disagree* to 4 = *strongly agree*.

Exploratory Factor Analysis (EFA). EFA initially explored the likely factor structures of the 18 items using the pre-test data. A screen test revealed 3 to 4 factors were likely proper solutions. The 3-factor solution presented a more proper solution than the 4-factor solution after scrutinizing the 3- and 4- factor solutions and the original scale designs (Marsh et al., 2005). The reasons include that the 4-factor solution had one factor with only one item, but, in the 3-factor solution, each factor had 4 to 6 items with factor loading > 0.500 .

Both interest and value only had 4 items with non-overlapping, larger-than-0.500 factor loading, and the same scaling method. To be consistent, the self-concept also contained four items, excluding one item with the lowest factor loading from the original five items. This procedure resulted in a self-reported motivational scale with 12 items in total (i.e., 4 items * 3 factors = 12 items).

Confirmatory Factor Analysis (CFA). A CFA validated the 3-factor model (with 12 items) identified by the EFA using the post-test data. The fit indices revealed the 3-factor model was a good fit to the empirical data (χ^2 (df) = 559.142 (51), $p < 0.0005$; RMSEA = 0.045; SRMR = 0.038; CFI = 0.964;

and TLI = 0.953. (The “Data Analysis/Hypothesis testing” section presents the full name, meaning, and use of the fit indices in justifying a model fit.)

The CFA factor loadings of the items for their respective factors are from 0.511 to 0.740 (Table 1). This study had a large sample size and all the factor loadings were larger than 0.500, the generally accepted size for factor loadings (Morin et al., 2017). The internal reliability coefficients (Cronbach’s alpha) of the three subscales were 0.734 (self-concept), 0.741 (interest), and 0.715 (value). A Cronbach’s alpha > 0.700 is mostly acceptable in the literature (Cortina, 1993). Overall, the self-reported motivational scale had desirable construct validity and internal reliability.

Detected Affect

A Machine Learning Procedure to Detect Online Affect. As a later development, the Reasoning Mind system introduced a procedure to detect students’ affective states and behaviour online (Ocumpaugh et al., 2015). Trained coders observe students for up to 20 seconds and record students’ affective states and behaviours on a synchronized device. Predictive algorithms, developed using standard cross-validation techniques, are developed to predict the observation records by features identified using online learning log data with feature engineering. Thus, students’ online affective states and behaviours can be automatically inferred using online learning log-file data.

The use of the procedure as a labelling system in doing classroom observations has been used to successfully detect diverse types of student affective states. Ocumpaugh et al. (2013) find that the learning system is quite engaging, with students spending 66% in engaged concentration and dividing the remainder of their time (34%) between boredom, confusion, and frustration.

The Four Detected Affects. This study focused on four affective measures: engaged concentration, confusion, frustration, and boredom. The data were obtained from the automated affect detectors that were trained on the procedure with observations. The distribution percentages of affective states in the procedure with observations were: engaged concentration (65.9%), confusion (2.0%), frustration (1.1%), boredom (13.7%), and NA (17.3%). The distribution percentages in the new data from the automated detectors were engaged concentration (78.8%), confusion (31.1%), frustration (< 0.001%), and boredom (0.84%). Due to the extremely low incidence of frustration and boredom, the data for these two states were re-threshold to match the distribution of the procedure with observations. Accordingly, the top 1.1% and 13.7% of the affect predictions were marked as active for frustration and boredom, respectively.

As stated in the ‘participants’ section, this study used students’ experiences of online learning in autumn and spring semesters. The mean scores of the four affective constructs for each student were calculated for each semester separately. As such, there were eight affective measures (= 4 detected affects* 2 semesters) in total. To give each measure a unique name in this study, the words “autumn” and “spring” were added for each detected affective construct (e.g., “Engaged Autumn” and “Confusion Spring”). Measures 7-4 in Table 2 present the names of the eight detected affect measures.

Data Analysis

Data Preparation. The initial dataset contained the four detected affect measures of 10,300,358 student actions at a 20-second grain size. The mean scores of the action-level measures formed their student-level measures for the fall and spring terms separately. Only 8,074 students have both fall and spring data, formed as a subset of data for further combination with the self-report motivation data.

The survey dataset contained 377,856 answers (209,610 for the pretest and 168,246 for the posttest). The answer-level dataset was transformed to a student-level one for the pretest and posttest separately. Only students with both pretest and posttest were retained (i.e., by inner join), resulting in a subset of data of 5,435 students. This dataset was used for EFA and CFA to determine the final items used in this study (Table 1). Detailed EFA and CFA procedures are presented in the Method/Measures/Self-report motivation section.

The datasets generated from the automated affect detectors and self-reported measures were combined using an inner join. This procedure selected a student sample that had affect data in both the autumn and spring semesters and motivation data in both the pre-test and post-test. The final dataset contained 792 students for later data exploration and analysis.

Data Exploration. Pearson correlation explored simple relationships between all the measures (Hypothesis 1). Because many correlational tests were simultaneously performed, Benjamini-Hochberg procedure was performed to correct multiple comparisons (Benjamini & Hochberg, 1995).

Hypothesis Testing. Path analysis with mediating effects using SEM methodology examined the mediating effects of detected affect on self-report motivation. Figure 2 presents the detailed models examined.

Generally, evaluating model fit to empirical data in SEM methodology applies multiple indices. Typically, used indices and criteria include the root-mean-square error of approximation (RMSEA) < 0.080, standardized root mean residual (SRMR) < 0.080, comparative fit index (CFI) > 0.900, and Tucker-Lewis index (TLI) > 0.900 (Hair et al., 2010). That is, for both RMSEA and SRMR, a smaller value indicates a better model fit, while for both CFI and TLI; a larger value indicates a better model fit. A traditional index but rarely used one is a non-significant chi-square (χ^2), because a significant χ^2 would be easily obtained if the sample size is large (Bollen & Long, 1993). As a convention, this paper would present χ^2 and its related statistics. The reason is that most highly used criteria (e.g., RMSEA, CFI, and TLI) use χ^2 as a base to adjust themselves such as by sample size, degree of freedom, and penalty for a complex model (Chiu, 2020).

Model 0 and Model 2 are just-identified or saturated models, which have the same number of free parameters as the total number of path coefficients and measure variances. This will create a zero degree freedom (Raykov et al., 2013). As such, all the fit indices, as described in the previous paragraph, cannot be obtained. Even with this, the path coefficients obtained for just-identified models are still trustworthy (Heyder et al., 2017).

Statistical packages in the free R language environment were used to perform factor analysis (EFA and CFA for self-report motivation item selection), Cronbach's alpha, correlation, and hypothesis testing. R codes with outputs were released on two Kaggle notebooks (<https://www.kaggle.com/code/meishiuchiu1/geniesurveyefa-cfa-cronbachalpha-r-datanouserid>; <https://www.kaggle.com/code/meishiuchiu1/geniesurveyaffect-corr-mediating-r>).

Research Results

Data Exploration: Paired T-Test and Correlations

Paired t-test examines whether differences occur between the same motivations or affect measures over two time periods. The results reveal that students change their motivations and affects

over time, except for value and frustration (Table 2). This may serve as an additional reason for using the posited model (Figure 2) to address the changes in motivation and affect in the academic year.

Pearson's correlations in Table 2 explore the bivariate relationships between all the measures. The results reveal that the measures of the same valences (either positive or negative) and the same measures obtained in two times (e.g., interest in pre-test and post-test; frustration in fall and spring) are positively correlated for both motivation and affect measures, separately. There are, however, low correlations between self-report motivation and detected affect.

Motivation. Self-concept, interest, and values are positive-valence constructs. All three constructs are significantly, positively correlated, except for three non-significant ones (Table 2). Generally, the highest correlations occur between the pre-test and post-test for all three motivation measures: self-concept ($r = 0.501$), interest ($r = 0.594$), and value ($r = 0.415$).

Affect. Engaged concentration is the only positive-valence affect. Engaged concentration has negative correlations with the other negative-valence affect measures (confusion, frustration, and boredom; Table 2). The three negative-valence affect measures are positively correlated with each other, except for two non-significant correlations. Positive correlations occur for the same affect detected at different times (e.g., positive correlation between boredom in fall and that in spring).

Motivation and Affect. The correlations between motivation and affect are very low (-0.199 to 0.099 ; Table 2) and only 12 out of the 48 correlations are significant. Self-concept is negatively correlated with negative-valence affect measures, though with many non-significant correlations. Interest generally has non-significant correlations with affect; all of its significant correlations violate the general principle of positive correlations between same-valence measures (e.g., -0.092 pre interest with engaged autumn) and vice versa (e.g., 0.099 post interest with confusion spring). No significant correlation occurs for value.

Model Fit Evaluation

Table 3 presents the fit index values for Model 0 and Model 1, each model with a pair of motivation and affect (Figure 2). Model 2, like Model 0, has a zero degree of freedom, and fit index values are not used to assess the models. Only two models of Model 1 reveal bad model fit values; that is, the models of self-concept with frustration (RMSEA = 0.104; TLI = 0.844) and boredom (RMSEA = 0.114; TLI = 0.879).

Table 3

Fit Index Values for the Models

	Mediator	χ^2	df	p	RMSEA	SRMR	CFI	TLI
Concept								
Model 0		0	0	NA	0	0	1	1
Model 1	engagement	6.525	2	0.038	0.053	0.017	0.994	0.983
	confusion	2.674	2	0.263	0.053	0.017	0.994	0.983
	frustration	19.247	2	0.000	0.104	0.044	0.948	0.843

	boredom	22.467	2	0.000	0.114	0.042	0.960	0.879
Interest								
Model 0		0	0	NA	0	0	1	1
Model 1	engagement	10.749	2	0.005	0.074	0.019	0.991	0.972
	confusion	6.102	2	0.047	0.051	0.025	0.992	0.976
	frustration	5.778	2	0.056	0.049	0.022	0.991	0.973
	boredom	2.182	2	0.336	0.011	0.012	1.000	0.999
Value								
Model 0		0	0	NA	0	0	1	1
Model 1	engagement	2.891	2	0.236	0.024	0.01	0.999	0.996
	confusion	1.674	2	0.433	0.000	0.011	1.000	1.003
	frustration	1.726	2	0.422	0.000	0.012	1.000	1.004
	boredom	1.447	2	0.485	0.000	0.010	1.000	1.000

Note. **Bold** (red) figures indicate their direction and significance violate predictions. χ^2 = chi-square (or minimum function test) statistic; df = degrees of freedom; RMSEA = root mean square error of approximation; SRMR = standardised root mean square residual; CFI = comparative fit index; TLI = Tucker–Lewis index.

Due to some undesirable fit index values for Model 1 (the concise mediating effect from a particular affect over two phases), the following only focuses on the results based on Model 2 (the full mediating effects via the both phases affect). Besides, Model 2 provides more mediating effects, as addressed in the next section, than Model 1. Table 4 presents the path coefficients based on Models 0 and 2

Table 4

Path Parameters for Models 0 and 2 (Figure 2)

		Model 0					Model 2					
	Mediator	c0	a2	a3	b2	b3	c2	d2	a2*d2*b2	a2*b3	a3*b2	total2
Concept		0.501										
	engagement		<u>0.040</u>	<u>0.047</u>	<u>-0.001</u>	<u>-0.074</u>	0.504	<u>0.716</u>	<u>0.000</u>	<u>-0.003</u>	<u>0.000</u>	0.500
	confusion		<u>-0.101</u>	<u>0.047</u>	<u>0.033</u>	<u>0.025</u>	0.503	<u>0.442</u>	<u>-0.001</u>	<u>-0.003</u>	<u>0.002</u>	0.501
	frustration		<u>-0.080</u>	<u>-0.146</u>	<u>-0.018</u>	<u>-0.018</u>	<u>0.496</u>	<u>0.301</u>	<u>0.000</u>	<u>0.001</u>	<u>0.003</u>	0.501
	boredom		<u>-0.111</u>	<u>-0.143</u>	<u>0.017</u>	<u>-0.017</u>	0.502	<u>0.508</u>	<u>-0.001</u>	<u>0.002</u>	<u>-0.002</u>	0.501
Interest		0.594										
	engagement		<u>-0.092</u>	<u>0.029</u>	<u>0.053</u>	<u>-0.126</u>	<u>0.584</u>	<u>0.720</u>	<u>-0.033</u>	<u>0.012</u>	<u>0.002</u>	0.594
	confusion		<u>0.001</u>	<u>0.079</u>	<u>0.051</u>	<u>0.002</u>	<u>0.590</u>	<u>0.436</u>	<u>0.000</u>	<u>0.000</u>	<u>0.004</u>	0.594

	frustration		<u>0.058</u>	<u>-0.058</u>	<u>0.000</u>	<u>0.051</u>	<i>0.591</i>	<i>0.316</i>	<u>0.000</u>	<u>0.003</u>	<u>0.000</u>	0.594
	boredom		<u>0.014</u>	<u>-0.033</u>	<u>0.028</u>	<u>0.034</u>	0.594	<i>0.526</i>	<u>0.000</u>	<u>0.000</u>	<u>-0.001</u>	0.594
Value		0.415										
	engagement		<u>-0.011</u>	<u>0.014</u>	<u>0.054</u>	<u>-0.074</u>	<i>0.414</i>	<i>0.717</i>	<u>0.000</u>	<u>0.001</u>	<u>0.001</u>	0.415
	confusion		<u>-0.019</u>	<u>0.033</u>	<u>0.016</u>	<u>-0.028</u>	<i>0.414</i>	<i>0.437</i>	<u>0.000</u>	<u>0.001</u>	<u>0.001</u>	0.415
	frustration		<u>-0.017</u>	<u>-0.035</u>	<u>0.041</u>	<u>0.027</u>	0.417	<i>0.312</i>	<u>0.000</u>	<u>0.000</u>	<u>-0.001</u>	0.415
	boredom		<u>-0.051</u>	<u>-0.024</u>	<u>-0.027</u>	<u>0.035</u>	0.416	<i>0.523</i>	<u>0.001</u>	<u>-0.002</u>	<u>0.001</u>	0.415

Note. The path parameter estimates are completely standardised solutions. The underlined figures are not significant at $p < 0.05$. Italic (green) figures indicate their direction and significance support predictions, and bold (red) ones violate.

Mediating Effects Examination 1: Inferred Mediating

A criterion for a mediating effect is the effect of a motivation from pre-test to post-test (Model 0) reduces when including mediators (Model 2), using this study as an example (cf. The Present Study). That is, a mediating effect occurs if c_0 in Model 0 is larger than c_2 in Model 2 (i.e., $c_0 > c_2$; Figure 2) although a direct multiplication of several related relationships is also an indicator (e.g., $a_2 \cdot b_3$, Table 4).

Given the above criterion, six pairs of motivation and affect show mediating effects (i.e., $c_0 > c_2$; Figure 2; Table 4). That is, the predictive effect from pre-test to post-test self-concept ($c_0 = 0.501$) reduces when frustration works as a mediator ($c_2 = 0.496$); the predictive effect from pre-test to post-test interest ($c_0 = 0.594$) reduces when engaged concentration ($c_2 = 0.584$), confusion ($c_2 = 0.590$), and frustration (c_2

$= 0.591$) work as mediators; the predictive effect from pre-test to post-test value ($c_0 = 0.415$) reduces when engaged concentration ($c_2 = 0.414$) and confusion ($c_2 = 0.414$) work as mediators.

Mediating Effects Examination 2: Direct Mediating

The direct effects between motivation and affect (based on a_2 and a_3 ; Model 2 of Figure 2) slightly objectivise the above inferred mediating effects (mainly based on c_0 and c_2). This emerges as a direct measure of a mediating effect obtained by multiplying all the effects relating to one mediator in its related paths. (Model 2 in Figure 2 shows the related paths.) The only significant mediating effect is the model for interest mediated by engaged concentration in fall ($a_2 b_3 = -0.092 - 0.126 = 0.012$). This result implies that engaged concentration in fall mediating the effect of self-concept from pretest to post-test is the most salient mediating effect in this study.

Compared with the pre-test interest and value, the pre-test self-concept directly predicts the most affect measures (Table 4). Pre-test self-concept negatively predicts confusion ($a_2 = -0.101$), frustration (-0.080), and boredom (-0.111) in fall as well as frustration ($a_3 = -0.146$) and boredom (-0.143) in spring.

Interest has three direct predictive effects (Table 4). Pre-test interest negatively predicts engaged concentration in fall ($a_2 = -0.092$), which further negatively predicts post-test interest ($b_3 = -0.126$). Pre-test interest positively predicts confusion in spring ($a_3 = 0.079$). Value has no significant direct effect on any detected affect.

Longitudinal Development within Motivation and Affect

Among the three motivation constructs, interest has the largest path coefficients from pre-test to post-test (0.584 to 0.594), followed by self-concept (0.496 to 0.504) and value (0.414 to 0.416; c2 in Table 4). The results imply that the degrees of stability of the three motivation constructs over time are the self- concept, the interest, and the value, in descending order. (Similar trends occur in Model 0.)

Among the four affect measures, engaged concentration has the largest path coefficients from fall to spring (0.716 to 0.720), followed by boredom (0.508 to 0.526), confusion (0.436 to 0.442), and frustration (0.301 to 0.316), in descending order (d2 in Table 4). The results also imply the degrees of stability among the four affect measures over time.

Discussion

The MAR Model

This study posits the MAR model (Figure 1) as a theoretical basis with a reference to related SRL theories (Baars et al., 2017; Efklides, 2011). The MAR model highlights the reciprocal relationship between motivation and affect as part of the SRL process. The results support the MAR model for specific pairs of motivations and affects (Table 4) in terms of mediation effects as evidence of regulation. The most salient mediation effect occurs for the pair of interest and engaged concentration. The MAR model is partially supported for self-concept and is completely not supported for value. Stable effects are found for the same motivations and affects over time. All these are addressed in detail as follows.

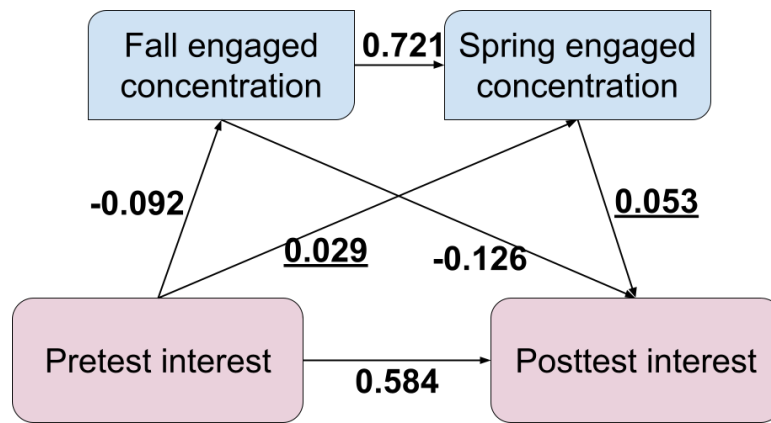
Few but Unique Mediating Effects of Affect on Motivation

The unique contribution of this study is the mediating effects of affect on motivation using longitudinal data and SEM predictive methodology. The results reveal that the full mediating model (Model 2 in Figure 2, where the affects in both phases mediate the effect that early motivations predict later ones) fits empirical data properly for diverse types of motivation and affect. (cf. Model 1 fails to fit empirical data for some types of motivation-affect pairs).

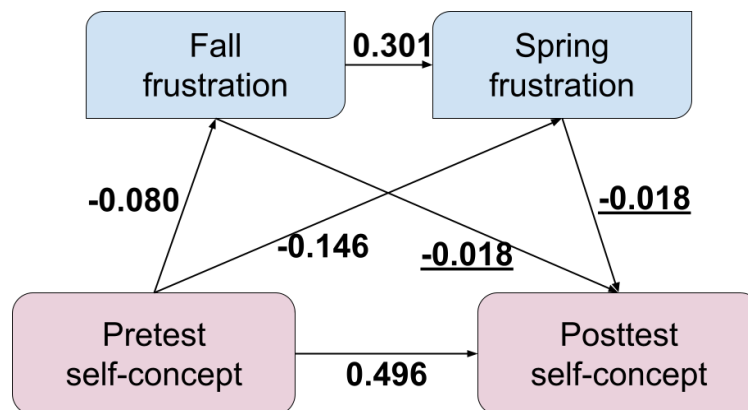
The significance and direction of the mediating effect from affect are different among the three motivation measures. Interest's mediating effects from affect are most salient, unique but explainable (e.g., engaged concentration in Figure 3-A). For the self-concept, the most significant mediating effects are from a negative-valence affective construct in a negative direction, an unsurprising result (e.g., frustration, Figure 3-B). The value has no mediating effect.

Figure 3

Example Path Coefficients



Example A. The Interest-Engagement Model



Example B. The Self-Concept and Frustration Model

Note. The underlined path coefficients are not significant at $p < 0.05$.

Interest

The most salient mediating effect is engaged concentration, mediating interest from the pre-test to the post-test. However, this mediating effect is unique in its patterns. The path from pre-test interest to engaged concentration in the fall is negative, and the path from engaged concentration in the fall to post-test interest is also negative. This overall mediating effect is significant in positivity. A closer look at engaged concentration in the spring finds that the paths leading to and leaving from it are both positive, though non-significant. This result suggests that interest's negativity in engaged concentration only occurs in the early stage. In a later stage of online learning, interest will gradually lead to engaged concentration. To add another mediating effect, interest leads to confusion only in a later stage (spring).

The interest is a motivation construct relating to science career choices (Cerinsek et al., 2013; Maltese & Tai, 2010). In order to explain the unique finding, we need to delve into the essence of 'interest.' The interest includes both subject-matter interest and situational interest (Høgheim & Reber, 2015), with situational interest being related to engaging in tasks but not to achievement (Zhu et al., 2009). Even though this study uses self-report 'subject-matter' (mathematics) interest items (Table 1), the unique pattern of mediating effects from disengagement and confusion suggests interest is sensitive to learning format (or situation) changes (e.g., between traditional and online learning).

For educational practices, teachers need to be aware that students interested in mathematics may experience initially less engaged concentration but lately (with confusion) in online mathematical problem-solving. Confusion is a sign of good or improved learning (Richey et al., 2019). The reason for this may be that the differences between traditional paper-and-pencil and computer-supported learning formats matter for students who are interested in mathematics. More support in learning format changes is needed for students interested in the traditional format of learning mathematics (e.g., manipulatives, drawing, and paper-and-pencil). An online system design simulating traditional mathematics teaching or learning environment (e.g., virtual reality, diverse hands-on activities, and creative arts) may also be a solution. These speculations are worth future research.

Self-Concept

Self-concept in mathematics is consistent with affect detected during online mathematical learning. This is evident in the self-concept's multiple negative paths with the negative-valence affect. The most salient affect is frustration. Students initially perceiving high self-concept in pre-test are less frustrated in both fall and spring. This is also true for boredom and for initial confusion, although the mediating effect is not salient (without reduced path parameters from pre-test to post-test self-concept).

The results concur with most scholars' emphasis on self-concept (confidence) for persistence and action taken (Burton, 2004). Another reason for the results may be that self-concept is more highly related to achievements than all other motivation measures (Chiu, 2018; Marsh & Hau, 2004). Achievement may be one of the major sources of motivation and affect (Marsh & Hau, 2004). Future research needs to validate this speculation further by incorporating achievement.

For education practice, the self-concept can prevent students from the negative affect of online learning lasting for a long time (e.g., over two semesters in this study). Cultivating the self-concept appears to benefit students in both traditional and online learning formats.

Value

Unlike the other two motivational constructs (the self-concept and the interest), the affective states did not significantly mediate the relationship for value. A direct reason for the finding is that value is not mediated by online affect. Another reason may be that the items of value focus on 'extrinsic motivation' (Cerasoli et al., 2014). Extrinsic motivation relates learning mathematics to the outer world (i.e., to help life, learn other subjects, enter college, and get jobs; Table 1), not inner value (or interest) (e.g., I enjoy working on math problems).

The research has indicated that extrinsic value or motivation is related to social norms and authorities in students' lives (Chiu, 2017). The affect experiences detected through online learning may be more likely to mediate or reflect students' inner-oriented motivations (e.g., self-concept and interest) than their extrinsic value. This speculation still needs to be validated, perhaps by incorporating measures of related social norms or authorities.

Stable Longitudinal Development of Motivation and Affect

For each specific measure, both motivation and affect are relatively stable. That is, pre-test motivation predicts later motivation; the affect in fall predicts that in spring. Specifically, the degrees of stability for motivation over time are self-concept, interest, and value, and those for affect are engaged concentration, boredom, confusion, and frustration, in descending order. The findings are consistent with past research findings that early motivation (e.g., self-concept and interest) predicts later one (e.g.,

Marsh et al., 2005). Past research on affect also provides partial evidence. More empirical studies need to validate these findings, especially for affect and for the differential degrees of stability over time between different constructs.

For educational practices, the findings suggest a stable, long-term quality of motivation and affect. This calls for a need for earlier interventions to promote desirable motivation (e.g., confidence and interest) and affect (e.g., engaged concentration).

Conclusion and Implications

The MAR Model is evidenced by mediating effects of the affect on motivation. To date, very few studies focus on relationships between the self-report motivation and the detected affect. This study posits the MAR model to address this issue. The results based on empirical datasets find that earlier self-concept can be mediated by fewer frustrations in online learning and lead to later self-concept. Interest triggers early disengagement and late confusion during online learning. Value is not mediated by affect.

SEM is used for longitudinal experimental design. When data is collected longitudinally, it is suitable to use predictive algorithms. SEM with mediating models offers opportunities to investigate more complex relationships when common measures are collected across time.

The findings of this study offer implications for pedagogical and online learning system designs. Both offline pedagogical designs and online learning system designs need to consider the gaps between different formats of learning. Students with a high interest in learning mathematics in real classrooms may fail to adjust themselves easily to online mathematical problem-solving and experience disengagement in the early stages (one semester) and confusion in the later stages (after one semester). Future research may investigate the effectiveness of different types of support for students in traditional and online learning formats.

Limitations and Suggestions for Future Research

Parsimony is a desirable characteristic of theories. This study finds a full-path model (Model 2) fits empirical data more properly than a concise model (Model 1). Even though a full-path model may reflect the fact, a more complicated model (including measures such as computer-assisted learning preference, learning styles, gender, and school) with reduced paths may be a solution to build a parsimonious model by future research.

“The affect” is a complex term with different meanings in different academic fields. This study uses a specific methodology in order to investigate relationships between related constructs in two major fields (educational psychology and technology). Unifying related constructs in different fields is a challenging task because even for the same field, affective constructs are not equivocal and orthogonal. For example, engaged concentration has a high correlation with boredom (Table 2). The commonality and differentiation between different types of affect and motivation assessed or detected using different tools over time remain an interesting issue to address in future research. Perhaps the first step is to develop the paper to synthesise past related studies by systematic review or meta-analysis, simultaneously suggesting methods to solve this complex issue.

This study examines the mediating role of detected affect (occurring during online learning) only. Potential mediators exist. For example, the achievement may mediate motivation (or affect) changes given the stable relationships between motivation and achievement. The MAR model may benefit from adding the achievement for its further elaborated, thorough the model.

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Data declaration

The initial datasets are not publicly accessible, but available to researchers upon request to Penn Centre for Learning Analytics (<https://www.upenn.edu/learninganalytics/geniemail.html>). The data were from the original researchers in fully identified form, which fits under the category of secondary analysis of identified data and is exempt from ethics committee review, category 4-ii, in the USA. Secondary analysis of identified data is also exempt from ethics committee review in Taiwan (the author's country).

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Analyzing the Role of Clip Thinking in the Context of Digitalization of the Educational Environment of the Future

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Abstract: The article is devoted to the study of the use of clip-thinking technology in the educational process. The author analyzes the features of this method and offers recommendations for

its effective use. In particular, the author emphasizes the importance of taking into account the age characteristics of students when using video materials, combining clip thinking with other teaching methods and tools, as well as the need to constantly update and maintain the library of video materials. Therefore, the purpose of the article is to study the impact of clip thinking on the educational process in the digital environment of the future. The paper uses general scientific and special scientific research methods, adheres to the principles of objectivity, scientificity, specificity, and systematicity. The results discuss important issues such as the choice of video materials and their relevance to the curriculum and the age characteristics of students. The author emphasizes that teachers and methodologists should be ready to use the technology of clip thinking and know its features and benefits. The results of the study showed that the use of clip thinking is an effective method of organizing the educational process. The conclusions note that clip thinking contributes to the development of critical thinking and creative abilities of students, increases their motivation to learn, and helps them to learn new material. However, the author also points out the disadvantages of this method, in particular, the possibility of distracting students and reducing their concentration on the material. All the conclusions drawn in the article can be useful for teachers and methodologists working to improve the educational process and introduce the latest technologies into educational practice.

Keywords: digital technologies, education of the future, critical thinking, clip thinking, educational process.

Introduction

The past decade has seen the spread of such a psychological phenomenon as clip thinking, a form of mental activity based on visual and audio information that can be reproduced in video format. This is due to the growing popularity of videos on social media and the YouTube platform. Clip thinking can have an impact on the formation of the perception of the world, in particular, on the styles of worldview formation. According to research, people who consume video content more often are more prone to visual and auditory thinking and less prone to logical and analytical thinking. It can also be an important element in the learning process. Didactic materials that use clip-based forms can be more effective in engaging and motivating students, especially the younger generation growing up in the digital world. However, some studies suggest that there may be negative consequences of this approach to learning. For example, the possibility of increasing the number of distractions and reducing people's attention span, which can negatively affect their productivity. Clip thinking, as a psychological phenomenon, is an important element of the modern digital world and can have an impact on the formation of styles of thinking and perception of reality. However, there is currently a lack of basic research on the relationship between clip thinking and digital education to better understand their interaction and impact on the future educational environment.

Research Problem

It was found that there is still a problem of insufficient coverage of this topic in the scientific literature. There are no studies that analyze in detail the relationship between clip-thinking technologies and digital education. Many of the available works focus on describing the phenomenon itself and its impact on decision-making processes in society. However, nowadays, more and more curricula and learning resources are based on clip thinking, and it is therefore important to conduct research on how this approach affects the processes of acquiring new knowledge. Another interesting issue is the use of the phenomenon of clip thinking to improve the quality of education in the digital age.

Thus, it is necessary to conduct a detailed analysis of the role of this phenomenon in the context of digital education, paying attention to its advantages and disadvantages, in order to develop optimal strategies for using this approach in the education of the future.

Research Focus

The material of the study is based on the analysis of publications of scientists and reflects the degree of interconnection of clip thinking and digitalization in the educational process in modern conditions.

The object of the study is the role of technologies based on the psychological phenomenon of clip thinking in education.

Research Aim and Research Questions

The purpose of the study is to examine in detail the role of clip-thinking technologies in the context of digital education and its impact on the future educational environment.

To achieve this goal, the following tasks were identified:

1. Analyze the theoretical aspects of the phenomenon of clip thinking and its impact on the way people think;
2. To study existing research on the use of clip-thinking technologies in education and evaluate its effectiveness;
3. To explore the possibilities of using clip thinking technologies in digital education and assess its impact on the future educational environment.

Research Methodology

A wide range of methods of scientific knowledge was used in the course of this study. In particular, an analysis of scientific and pedagogical literature was conducted, which allowed us to summarize the available knowledge about clip thinking and its use in digital education. In addition, the use of clip thinking in the educational process was observed to study its impact on the quality of learning and student development.

Also, a systematic approach was applied to understand the differences between traditional and innovative approaches in education. This approach made it possible to consider technologies based on clip thinking as part of the digital education system and find out how it affects various aspects of the educational process.

Research Results

Clip Thinking as a Phenomenon of Modern Digital Culture

As part of the research, a detailed analysis of the concept of “clip thinking” in the context of digital education was conducted. This term is used to describe a way of thinking based on the visual processing of information, building logical connections, and understanding complex problems with the help of short video clips. The origins of this concept are rooted in the Internet culture, where video content plays a key role in the perception and understanding of information. Modern technologies allow for the rapid creation and distribution of video content, which makes clip thinking particularly relevant to digital

education (Shvydun, 2021). One of the main aspects of this thinking is its visual component. Clips include graphic and visual elements that help convey complex information and make fundamental concepts and ideas easier to understand. Moreover, video can create an emotional connection between the learning material and the students, which helps to increase their motivation and interest in the learning process. Table 1 summarizes the advantages and disadvantages of using video thinking as a teaching and research tool.

Table 1

Advantages and Disadvantages of Clip Thinking

Advantages of clip thinking	Explanation
Efficiency of memorization	Visuals are more memorable than text, so clip thinking can help learners and students better remember and understand new material
Relative simplicity	Creating a short video can be a relatively simple task that doesn't require a lot of effort or financial outlay
Versatility	Videos can be created on any topic and in any language, making them a versatile tool for teaching and research
Accessibility	Videos can be watched at any time, allowing pupils and students to revisit material they do not understand
Disadvantages of clip thinking	
Dependence on technology	Creating videos requires technology and special equipment that may not be available to some students and learners
Danger of overloading	Too many videos can lead to attention overload and impaired memorization of material
Limited video length	Short videos have their advantages, but they may not be detailed enough to cover complex topics
Inadequacy of the material	Video may not always convey all the necessary material, which can lead to distortion and misunderstanding of the topic

Source: development of the authors (Barannyk et al., 2020; Muhammadiyeva et al., 2020; Vafaeikia et al., 2023).

One important aspect of the psychological phenomenon of clip thinking is its brevity. Short videos usually have a very limited duration (from a few seconds to a few minutes), which allows you to convey key information in a limited amount of time. This is especially important in digital education, where students' attention spans can be short.

In other words, it is a type of visual thinking that can be used to solve problems involving visual objects, such as drawings, photographs, videos, and graphs. This mindset is often used in art, design, architecture, and business, where effective communication through visuals can be of great importance (Bahodirovich, 2021).

In the world of digital technology, it is increasingly gaining popularity. Thanks to the development of computer hardware and software that allows you to create videos and other visual materials quickly

and easily, clip thinking is becoming more and more accessible to a wide range of people. This opens up new opportunities for using this type of thinking in education and research.

However, as it grows in popularity, a number of problems and challenges become clear. For example, there is a risk that visual elements may dominate the content, which can lead to distortion or misunderstanding of information. Also, not everyone can develop clip thinking due to individual characteristics of the nervous system organization, which can become an obstacle to effective communication and cooperation.

On the one hand, clip thinking as a mental phenomenon can be a consequence of rapid changes in the information environment, which requires immediate decision-making and adaptation to new conditions. On the other hand, it may be the result of changes in the structure of the brain associated with the growing use of information communication technologies.

As noted by Sushchenko and Sushchenko (2020), one of the main consequences of using the phenomenon of clip thinking for educational purposes is a reduction in attention span. Individuals who have this trait tend to spend less time reviewing longer texts or presentations and more time-consuming short pieces of information. This can lead to an inability to focus on complex tasks and problem-solving that require more time for understanding and analysis.

It should also be noted that excessive use of the phenomenon of clip thinking in learning can lead to a loss of the ability to think critically and analyze. Individuals who are dominated by this type of thinking tend to prefer quick conclusions and generalizations instead of focusing on details and analyzing them. This can lead to impaired ability to think critically and make informed decisions.

Application of Clip Thinking in Education and Science

Although clip thinking has its drawbacks, technologies based on its principles can be used as an effective tool for teaching and research. For example, the use of short videos and other multimedia resources can increase students' ability to memorize and understand new information. In addition, clip thinking can help to understand complex concepts and processes that are difficult to explain in words through visual examples and illustrations.

In addition, such technologies can be a useful tool for scientific research, especially in the fields of psychology and medicine. For example, videos can be used to record patients, which can help doctors understand the symptoms and characteristics of a disease.

In addition, they can be used to popularize scientific research among the general public. Thanks to the video format, difficult scientific concepts can be explained in a clear and accessible way to different audiences. This can increase interest in science and help educate a new generation of scientists and researchers (Pepin, 2021).

Thus, we can say that clip thinking is an important phenomenon in the modern world that affects various aspects of our lives, from entertainment to science. Although it has its drawbacks, it can be an effective tool for teaching, research, and popularizing science. Understanding and researching clip thinking can help us better understand how people perceive and process information and help us create more effective ways to communicate and learn in the future (Caratozzolo et al., 2022).

Characteristics of the Modern Digital Educational Environment

Today, in the digital world, education is becoming increasingly dependent on modern innovative technologies. Digital tools are increasingly being introduced into educational processes, which creates the need to understand the features of the digital educational environment (Guryevskikh, 2020).

One of its most obvious characteristics is the emergence of a large number of digital tools and platforms that allow students and teachers to easily interact and collaborate regardless of their location. This can provide more flexible learning environments and increase the accessibility of education for different groups of people. The main characteristics of a digital learning environment are presented in Table 2.

Table 2

Characteristics of the Digital Learning Environment

Feature	Description
Speed and accessibility	A digital learning environment allows you to access the information quickly and easily you need from anywhere using a computer, tablet, or smartphone.
Accessibility to new technologies	The digital learning environment provides access to new technologies and tools that can help learners better absorb the material and develop their skills.
Flexibility and individualization	The digital learning environment allows learners to learn at their own pace and level, working with the material in the order they find most effective.
Possibility of interaction and cooperation	Digital learning environments allow learners to communicate and collaborate with other learners and teachers from anywhere in the world, increasing intercultural knowledge and skills.
Lack of personal contact	Digital learning environments can lead to a lack of face-to-face contact between learners and teachers, which can reduce motivation and comprehension of the material.
Dependence on technology	Digital learning environments require technology and internet access, which can be a challenge for some students and schools.

Source: development of the authors (Perschina et al., 2019; Shkvyr et al., 2020; Wong & Moorhouse, 2021).

An important characteristic of the digital environment is the possibility of personalized learning. With the help of these tools, teachers can create individualized learning programs that take into account the personal needs and interests of students. This can increase learning efficiency and ensure better results. Also, digital learning environments can provide new opportunities for teamwork. Interactivity and sharing of materials can be achieved through projects, discussions, and other interactive activities. As a result, students are able to acquire a wider range of knowledge and skills that they can apply in real life.

Despite these advantages, the digital learning environment also has some disadvantages and challenges. For example, the use of digital information technologies can lead to students becoming dependent on computers and other devices. This can lead to a decrease in intrinsic motivation and autonomy, as they may rely on technology instead of their own efforts (Kohn Rådberg et al., 2020).

In addition, the development of the digital learning environment may cause a decrease in the quality of interpersonal communication, as students spend more time communicating with computers than with other people. There may also be a problem with maintaining the technical base and infrastructure, which may lead to a decrease in the efficiency and accessibility of education.

It should be noted that the use of digital technologies may lead to a decrease in students' concentration levels, as it may be difficult for them to maintain attention for long periods of time when working with a computer or other digital device. There may be a problem with providing access to a digital resource for students with low levels of technical literacy or limited access to computers and the Internet.

The features of the modern digital learning environment include its global reach and accessibility, which allows you to gain knowledge and interact with students and teachers from anywhere in the world, the detail and accuracy of the information provided to users, and the ability to expand the boundaries of the traditional educational process. With the help of technology, which is the basis of the digital environment, it becomes possible to study and conduct research from anywhere in the world. Users are allowed to register for online courses, access virtual libraries and other resources. This allows students and teachers to receive training and information from any country, which contributes to their development and broadening of their horizons (Melnik et al., 2020).

Another interesting characteristic of the innovative digital education environment is its accessibility. Thanks to the development of technologies that ensure its functioning, learning and obtaining information is becoming accessible to most people, regardless of their location and social position. There is concentrated access to online courses, webinars, and e-textbooks, which makes it possible to study directly from a smartphone or computer.

The detail and accuracy of the information provided in the digital learning environment can ensure high-quality learning and promote the development of students' critical thinking. It is also worth noting that digital technologies provide ample opportunities for individualizing learning and adapting to the needs of each student.

However, the availability of such opportunities can also cause problems, such as the lack of personal contact with the teacher and other students, which can be important for the formation of emotional and social development. Digital technologies can be time-consuming, which can lead to technology dependence and stress.

Digital learning environments provide opportunities for quick access to a wealth of information and knowledge. However, this can also be a problem, as students may become overly dependent on this information and fail to develop critical thinking skills and independent knowledge-seeking (Motornaya, 2022).

It is worth noting that the digital learning environment can have an impact on the health of learners, including their eyesight and mental state. Therefore, it is important to design and use digital technologies taking into account the potential risks and use them with caution.

The development of this environment can have an important impact on the development of skills and competencies that are important for students' future lives and careers. For example, the use of digital tools to teach programming, data visualization, and robotics helps to develop competencies in information technology. In addition, various forms of interactive learning, such as video conferencing,

webinars, and gaming platforms, can be implemented in the digital learning environment, which can increase students' motivation and interest in the learning process.

Thus, the modern digital learning environment has many advantages and opportunities to improve the quality of learning and student development. However, it also has its challenges and disadvantages that need to be taken into account when implementing it in the educational process.

The Role of Clip Thinking in the Process of Acquiring Knowledge in a Digital Environment

In the process of studying the role of short videos in the process of acquiring knowledge in the digital environment, it was found that this approach is quite effective. Such videos are used in various fields, including education, advertising, marketing, and entertainment. They can have a significant impact on the perception and absorption of information, making them a popular tool in the digital environment.

One of the key advantages of short videos is their accessibility and speed of information absorption. Short videos are usually between a few seconds and a few minutes long, which allows you to gain knowledge without too much effort and time. In addition, they can be produced using a variety of formats, such as animation, documentary, interview, and others, which provides a wide variety and accessibility of learning materials.

Short videos also have a powerful emotional impact on the viewer. They can create strong emotions and impressions, which ensures high-quality learning. Sometimes short videos can convey more information than a book or article because they can be produced using different elements such as sound, images, and text (Dykhnych et al., 2022).

In the digital environment, short videos can be used for a variety of purposes. For example, they can be used as a learning tool for students who can absorb new information with particular ease through visual perception. Such videos can be used as an effective tool for online courses and training programs.

One of their main advantages is their format. They usually last no more than a few minutes, which allows students to quickly absorb information and focus on key points. In addition, they can be easily accessed anytime and from anywhere, enabling students to learn at their own time and pace. Another advantage of short videos is their visual appeal and the ability to use various multimedia elements such as graphics, animation, music, voiceover, and more. This allows you to create more attractive and understandable materials for students.

Short videos can be used to create interactive tasks and tests that allow students to test their knowledge and skills in real-time. This can be useful for teachers who want to create more effective and engaging lessons.

Despite these advantages, short videos also have their drawbacks. One of them is the limited depth of knowledge that can be conveyed through a short video. This means that more complex and detailed topics may require additional materials and resources (Morado et al., 2021).

Given that the human brain is more prone to visual perception, they can be a valuable tool for acquiring knowledge in a digital environment. They can help students understand complex concepts and information that may be difficult to absorb through simple reading or listening. In addition, short videos can help to capture students' attention and make the learning process more interesting and engaging.

Discussion

The research has shown that clip thinking can be an effective tool for improving the efficiency of the learning process. To this end, recommendations have been developed for the use of clip thinking in the organization of learning (Abdukadirova & Mirzajonova, 2021; Liao et al., 2022; Zolotukhina et al., 2021).

First of all, it should be noted that the use of technologies based on the phenomenon of clip thinking as a means of stimulating interest in educational material is quite effective. The use of short videos or animations may seem more meaningful and engaging to students than traditional teaching methods. In addition, such videos can help the instructor to show certain conceptual or practical aspects of the topic they are teaching. The use of short videos can be beneficial because it provides visual and auditory stimulation that promotes concentration. Such videos can play an important role in reducing the tension and stress associated with learning. It should be noted that the use of clip-thinking technologies as active learning tools can contribute to more effective and practical learning.

Visualization and illustration of concepts can help students better understand the material, as well as make it more interesting and understandable. Short videos can be used to create learning tasks and projects, which increases student engagement and interest in learning.

When using clip-thinking technologies in the organization of the educational process, it is necessary to follow some recommendations and restrictions. First of all, it is important to remember that video materials should be of high quality and professional. This means that they should have good sound and visual quality, as well as be carefully prepared and substantiated. Teachers should carefully select and create a variety of video materials to ensure a quality and effective learning process. It is also important to remember that students have different levels of perception and learning styles, so video materials should be tailored to the individual so that each student can find the best way to learn.

It is important to combine the principles of clip thinking with other methods, such as lectures, discussions, workshops, and others. For example, you can use short videos as a supplement to lectures, where they will help you understand theoretical material and illustrate it with examples. You can also use clips to enhance understanding of complex concepts that are difficult to explain in words.

It is important to emphasize the importance of constantly updating the video library. It is important to make sure that the videos are relevant, meet the requirements of the curriculum, and are age- appropriate for students.

In addition, it is important to take into account the peculiarities of students when using clip thinking. For example, it is necessary to provide different options for accessing video materials, such as different formats, languages, and prompts for people with disabilities. You should also make sure that the video materials are not too long to avoid student fatigue and keep their attention.

Conclusions and Implications

As a result, the use of clip thinking can be useful for improving the efficiency of the learning process. Video materials can make learning more interesting and understandable for students, facilitate learning and increase motivation to learn.

However, it is important to take into account some of the challenges and disadvantages of using clip thinking, such as the possibility of dependence on video materials and the need to combine them

with other teaching methods. To effectively use clip thinking in the learning process, it is important to follow the recommendations for creating and using video materials, as well as to ensure their accessibility and relevance to students.

In general, clip thinking, as a mental phenomenon, can be an important tool for improving the quality of learning and preparing future generations for life in the digital age. However, to maximize its effectiveness, it is necessary to ensure a balance between the use of video materials and other teaching methods, as well as to take into account the requirements for the relevance and accessibility of video materials for students and teachers.

Suggestions for Future Research

The clip thinking study as a psyche phenomenon opens up new perspectives and opportunities for education improving the learning process. The use of video materials in education can have a significant impact on learning effectiveness, contributing to a greater student interest and increased motivation to learn.

One of the main advantages of clip thinking in education is that videos can make learning more interesting and understandable for students. Videos visualise complex concepts, help to imagine abstract concepts, and stimulate more active perception and understanding of the learning material. Thus, the value of using clip-based technologies in the learning process should be explored.

However, some challenges and disadvantages of using such technologies should be taken into account. The dependence on video materials that can make students less independent in their learning should be investigated. The importance of combining the use of video materials with other teaching methods in order to ensure diversity and comprehensiveness of learning approaches is also of great interest.

For the effective use of technologies based on clip thinking, it is necessary to follow the recommendations for creating and using video materials. It is necessary to establish the peculiarities of safe and effective perception of video content by students for further development of educational material. This will provide methodological support in the creation of the necessary visual learning material.

Overall, these technologies can be an important tool for the quality of education improvement and preparing future generations for life in the digital age. Video materials help students expanding their knowledge, developing critical thinking, and contributing to the enrichment and differentiation of their learning experience.

However, in order to maximise the effectiveness of using video-based thinking, it is necessary to ensure a balance between their and other methods use. It is necessary to take into account students' individual characteristics and the diversity of their learning styles, integrating different approaches to learning that combine video materials with textual materials, interactive tasks and collaborative work.

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Analysis of Trends in Pedagogy and Psychology: Implementation of Globalization Solutions

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Abstract: The modern development of psychology and pedagogy, which are considered as closely interconnected sciences, is characterized by the trends affected by intensive globalization processes. Therefore, the purpose of the article is to analyze these trends in order to find the applicable solutions in the field and to implement them as appropriate mechanisms for improvement of scientific and educational activities. To analyze modern pedagogy and psychology and their trends, to study the practices of implementation of global solutions we used qualitative (review of scientific and methodical literature, scientific description, interviewing, holistic analysis, description, synthesis of research results and deduction) and quantitative approaches to research (analysis of statistical data and structural analysis). The research revealed that a great number of articles concern the problems of impact of globalization phenomenon upon the educational process and social sciences paying attention towards challenges in modern pedagogy and psychology. The current literature review is based upon the analysis of 38 recent works published between 2018-2023 in internationally indexed journals. The empirical research was conducted among 36 scientific and educational professionals in Ukrainian educational institutions in the first semester of 2022-2023 academic year. The findings showed that the trends in modern pedagogy and psychology exist in general and specific patterns where general trends are typical for both fields and influence upon their transformations equally but specific trends include patterns that characterize one of these sciences and consequently create peculiar approaches. On the basis of the results of the survey, there are specific groups of solutions that can be implemented in three levels: management, organizational, and individual. The analysis of respondents' answers and the quantitative data proved that implementation of solutions may lead to the enhancement of psychological and pedagogical science and improve the efficiency of educational process within the Ukrainian institutions.

Keywords: globalization, psychology, pedagogy, trends, integration, internationalization, innovation.

Introduction

Globalization is one of the main tendencies of the world development since it causes a number of significant economic, political and cultural changes. At the same time, globalization directly influences upon the countries that get globally interconnected and, therefore, the world becomes more integrated via policies and structural programmes (Atta Quainoo et al., 2022).

It extends cultural and information contacts across nations, affects management, industries, trade, labour market, political formations, and other social institutions (Gu, 2021). Under a strong impact of globalization, the studies of social issues advance towards the new level that suggests reinforced integration and internationalization of national systems, development of new knowledge patterns. Weiland et al. (2021) emphasize that today there is a need for positive improvements within education including social and human sciences and the 2030 Agenda (United Nations, 2018) acknowledges education among one of transformative changes through Sustainable Development Goals. In this context globalization, as an essential process, touches upon all spheres of human life. Psychology and pedagogy are not exceptions and they are facing new stage of reformatations and adaptation to modern world tendencies. They both are characterized by orientation towards harmonization of objectives, visions, content and procedural instruments according to the international standards.

The sphere that is responsible for human behaviour as psychology is the study of human behaviour and pedagogy deals with the modification of human behaviour are considered as strategic

fields of social life because they cause the changes within the community and affect the improvement of human capital. Today, the range of research concerning pedagogy and psychology extends beyond the educational environment and are not limited to the problems of training, upbringing, or mental health support as it traditionally seemed.

Therefore, pedagogy and psychology are closely related and interconnected as some areas of psychological science (pedagogical and age psychology in particular) are linked to teaching methodology and didactics. At the same time, pedagogy widely used the knowledge about psychological principles of learning. Moreover, strengthening of connections between these two sciences create positive conditions for introduction of efficient pedagogical practice, invention of applicable modern teaching technologies and encourages of personality development. These fields both substantiate and forecast the character and possible interaction between generations in order to preserve further enhancement of humanity as well as its culture and, accordingly, they should be studied inseparably.

At the same time globalization and integration are necessary processes as contribute to scientific advancements and human development. Also, they have a positive effect on the system of education and training of future experts specifying modernization of social and human sciences, strengthening education system, and forming favourable conditions for implementation of innovations and further human development.

Research Problem

Atta Quainoo et al. (2022) confidently declare that interrelation between globalization and social and human sciences has become one of the most discussed issues in literature and political agendas. Both psychology and pedagogy have an important place in shaping the community or globalization and global activities have a great impact upon psychological and pedagogical concepts and forms of knowledge management worldwide.

Obviously, psychological and pedagogical sciences overcome significant changes as traditional knowledge paradigm ceases to be principal concept or thought pattern because of its inability to realize scientific tasks in the global dimension. Accordingly, there is an urgent need to analyze the current trends in psychology and pedagogy under impact of globalization in order to build efficient scientific process and to take advantages of their transformations.

Research Focus

Gradual development of human society, orientation towards personality improvement and self-actualization, enhancement of abilities among professionals to acquire new knowledge and making creative or innovative decisions within professional activities mean solution of complex problems of pedagogy and psychology. And today, the importance of their analysis is determined a number of factors related to globalization phenomena like socio-economical changes, security situation, political transformation, conditions of labour market, education reforms, implementation of innovations, organization of management systems (Zajda, 2020). Globalization process is often described as the increasing interconnectedness and interdependence between local, national, and international systems (Lee & Stensaker, 2021) and, therefore, it affects pedagogy and psychology through various channels.

The findings show that trends in modern pedagogy and psychology exist in a complex structure which comprises two groups of patterns: general and specific. General trends are typical for both fields and influence upon their transformations equally. They include: liberalization, integration, terminology

unification, digitalization, implementation of applied aspects of scientific knowledge, extensive use of artificial intelligence (AI). Specific trends include patterns that characterize one of these sciences and consequently create peculiar approaches. Modern pedagogical trends include curricular content changes, implementation of cross-curricular approaches, development of new skills among students, including professional competency, harmonization and standardization, use of new teaching technologies and methods, life-long learning and informal education, situational leadership, e-learning, and popularization of global education. At the same time the development of psychology is characterized by implications for westernizing psychology, development of “global psychology”, emergence of different mental states, integrative psychology. Figure 1 shows the classification of modern trends in pedagogy and psychology under influence of globalization.

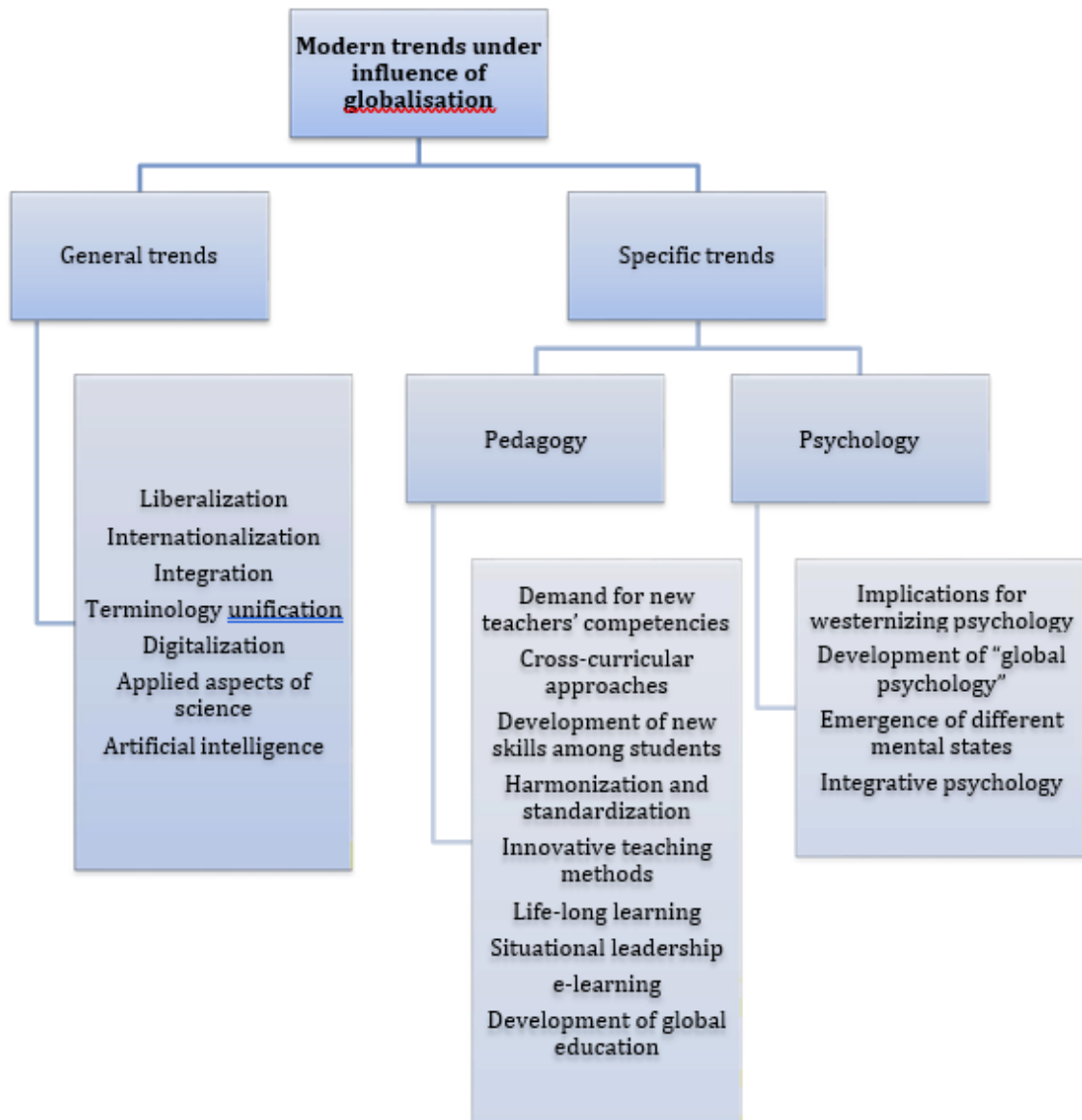
To accelerate the progress in social and human sciences, to make research more efficient and more applicable, to enhance the process of future specialists and to organize the educational process more productively despite internal and external challenges, it is necessary to analyze general and specific trends in pedagogy and psychology in details.

Liberalization concerns the removal of restrictions, in economic context in particular, and forms individualized version of modern educational and social institution. Liberal institutional policy regards the right to choose teaching technologies or methods and the possibility to conduct research on any topic within the frames of ethics of academic community and international practices without outside influence (Brooks & Weber, 2022). Internationalization deals with international cooperation and collaboration to facilitate the new conditions and their consequences considering the individual situation of any given university (Ge, 2022).

In the context of education, the introduction of the Bologna Process of standardization and the development of the European Higher Education Area is the example of internationalization (Tight, 2022). Internationalization concerns recognizing the variations research approaches, norms, conceptual structures and interaction models. Besides, the role of American Psychological Association (APA), implementation of its research standards and style facilitates internationalization within psychology.

Figure 1

Classification of Modern Trends in Pedagogy and Psychology Under Influence of Globalization



Source: author's own development on the basis of literature review.

Integration is a common scientific notion and regarding psychological and pedagogical knowledge it means interrelation and convergence of structural components that brings increasing their complexity, generalization and stronger ties (Atta Quainoo et al., 2022; Feng, 2022). We found that integration exists in three tiers (Chesley et al., 2018; Saurykova et al., 2018). The first one represents interdisciplinary integration within the educational process when disciplines related to pedagogy and psychology are taught on the basis of a holistic approach. The second tier means the synthesis of psychology and pedagogy into one science like "Psychological pedagogy", "Organizational psychology", "Basics of psychology and pedagogy", or "Educational psychology". And the third tier refers to relevance of integration and provides the fundamentals of comprehensive psychological and pedagogical knowledge.

Terminology unification is closely related to internationalization and integration trends. It relates to harmonization of national and international terminological systems resulting in creation of common

database (Shah & Campus, 2021; Torres Ricaurte et al., 2018). At the same time, the process of interlanguage unification facilitates multilateral research and international cooperation.

The next trend in modern pedagogy and psychology refers to digitalization that profoundly altered the objectives of professional training and the instruments of their achievement. Digitalization leads to complete transformations of educational process and knowledge acquisition (Douse & Uys, 2018). Digitalization provides an access to information and suggests using information and communication technologies (ICTs) more extensively (Røe et al., 2022). Further it leads to enhancement of efficiency of educational process and orientation towards students' needs (García-Gutiérrez et al., 2021). Digitalization also changes conventional teaching methods and forms into innovative one that require ICTs and modernization of interaction methods with the use of a number digital tools (Pettersson, 2021; Sart et al., 2022). On the one hand, digital transformation simplifies the educational process and advances it but on the other hand, it embraces new challenges for psychological and pedagogical science like building new competencies, development of relevant methodical materials and implementation of digital courses.

Under the impact of globalization processes all the sciences require adoption of applied aspects to find solutions to actual problems like development of professional competency and integrative readiness of future specialists (Predyk et al., 2020). Applied character of psychological and pedagogical knowledge is characterized by a combination of interrelated and interdependent components: conceptual, content, technological, and diagnostical (Segarra & Tillery, 2018) that allow select appropriate approaches, models, and methods of scientific, educational, and production activities.

Some recent findings (Ouyang & Jiao, 2021) show that the use of AI has become a popular trend in psychology and pedagogy. AI, being a set of instruments to collect and adapt data and further generate new solutions or conclusions (Vázquez-Cano, 2021), opens new opportunities, potentials as well as new practices and techniques (Kasepalu et al., 2022). Moreover, AI platforms help develop the algorithms for modeling human activities and solving complicated tasks. Table 1 shows the analysis of specific trends in modern pedagogy and psychology under impact of globalization on the basis of literature review.

Table 1

Analysis of Specific Trends in Modern Pedagogy and Psychology Under Impact of Globalization

Name of the trends	Its characteristics	Authors
Pedagogy		
Demand for new teachers' competencies	Due to change of educational environment, teachers must possess high level of communicative skills, facilitation abilities, information literacy, digital competency and readiness innovations	Auziņa (2018), Canli and Demirtaş (2018), Khera (2022)
Curricular content changes	Adaptation of educational programmes to students' needs and requirements of labour market	Zajda (2020)
Implementation of cross-curricular approaches	Implementation of ideas of global dimension like globalization, national and cross-cultural identity, democracy, human rights, equality, inclusion, peace, security, and sustainability development	Dichek et al. (2021)

Development of new skills among students, including professional competency	Development of professional competency and additional skills like native and foreign language competency, communication and teamwork skills, creativity, critical thinking skills, digital literacy, entrepreneurial skills, cultural and cross-cultural awareness	Auziņa (2018), Canli and Demirtaş (2018)
Harmonization and standardization	Coordination and harmonization of education policies and education standards, curricular contents, learning outcomes assessment	Zajda (2020), Vera and Zapata-Jaramillo (2022)
Implementation of new teaching methods	Use of innovative teaching methods based on interactivity and collaborative work, student-centered approach, use of ICTs	Khera (2022), Khan and Afaqi (2019)
Development of life-long learning and informal education	Spread due to the necessity to adaptation of education to globalization and informatization processes and requirement to renew knowledge and skills gradually	Ergashev (2020)
Introduction of situational leadership	Formation of situational leadership as an ability to make decisions considering the situation and context surrounding the particular issue	Khan and Afaqi (2019)
Use of e-learning	Delivery of open access to educational, creation of open and participatory pedagogy due to the use of ICTs	Ergashev (2020), Khera (2022), Røe et al. (2022)
Development of global education	Increasing need for intercultural knowledge and communication skills; Training students to international adaptation	Canli and Demirtaş (2018)
Psychology		
Change in identity research	Globalization brings transformation in identity vanishing cultural distinctions and develops bicultural or polycultural personality	Ozer (2019), Grimalda et al. (2018)
Implications for westernizing psychology	Spread of western studies and implementation of monological scientific discourse	Ozer (2019)
Development of “global psychology”	Implementation of universal scientific approaches and methods	Grimalda et al. (2018)
Emergence of different mental states	Mental states caused the process related to globalization like migration, urbanization, or industrialization	Grimalda et al. (2018)
Integrative psychology	Combination of different theoretical approaches to psychological studies such as quantitative and qualitative research methodology, multi-theoretical and mixed-methods approach	Grimalda et al. (2018) Krishnan (2022)

Source: author's own development on the basis of literature review.

The comprehensive verification of trends in pedagogy and psychology is essential for implementation of global solutions and enhance the efficiency of professional training of future specialists, improve the quality of research related to psychological and pedagogical sciences, and positively impact upon human community development under new conditions of globalization processes.

Research Aim and Research Questions

The purpose of the article is to analyze trends in modern pedagogy and psychology to find the applicable solutions and to implement them as appropriate mechanisms and methods for improvement of scientific and educational activities.

The article objectives concern the following:

- to conduct a close-open survey among scientific and educational professionals in Ukrainian educational institutions to analyze the most common trends in modern pedagogy and psychology;
- to classify trends in modern pedagogy and psychology under the influence of globalization phenomena;
- to outline the most applicable solutions within the frames of development of psychological and pedagogical sciences affected by globalization processes.

Research Methodology

General Background

To analyze the trends of modern pedagogy and psychology and to study the practices of implementation of global solutions we used qualitative and quantitative approaches to research. Qualitative methodology include: review of scientific and methodical literature, scientific description, interviewing, holistic analysis, description, synthesis of research results and deduction. Quantitative methods are used to process data collected during the close-open survey and refer to the following: analysis of statistical data and structural analysis.

Sample / Participants / Group

The survey was conducted among 36 scientific and educational professionals in Ukrainian educational institutions teaching the disciplines related to psychological and pedagogical sciences or are involved in research in this field. We organized the questionnaire of scientific and educational professionals online through Google forms. Also, we carried out the face-to-face interviews with some individuals to obtain more accurate data on the problem. The respondents were informed about the survey and agreed to participate voluntarily. Appendix A shows the survey respondents' profiles including field of their professional interest, experience, education, students' level they teach, and type of responsibilities they are involved in the workplace the most (conducting or supervision research, development of documents, lecturing, or practical training).

Instrument and Procedures

The survey was carried out in the first semester of 2022-2023 academic. The scientific and educational professionals were interviewed online in two stages to obtain the data on the problem. The first stage suggests filling in the form that contained closed questions that referred to the spread of trends in modern pedagogy and psychology. The choice of trends was based on the literature review Appendix B shows the form with closed questions used during the survey. The second stage referred to open questionnaire when the scientific and educational professionals had to describe positive and negative features caused by the trends studied. Appendix C shows the form for open survey.

Data Analysis

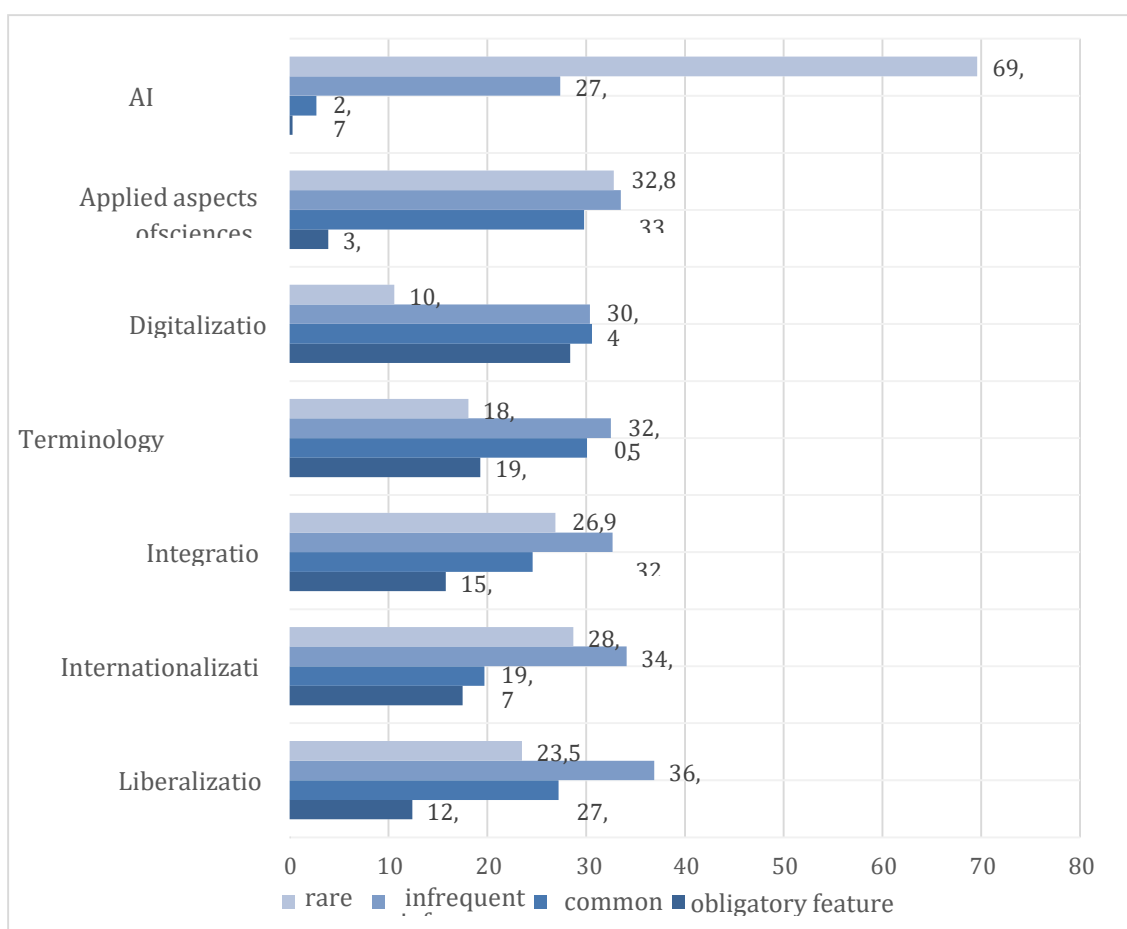
To analyze the trends in modern pedagogy and psychology as well their positive or negative features we studied the data obtained very carefully. The answers of the respondents were shown in the diagrams of the following sections. Also, they became the basis for the development of recommendations for implementation of actual solutions in the educational process.

Research Results

The findings showed that the scientific and educational professionals experience many of the trends within the educational activities. Figure 2 demonstrates the results of the closed questionnaire on general trends. It proves that the most common general trends in modern pedagogy and psychology are the following: digitalization and use of ICTs (28,4 % of teaching professionals consider them an obligatory feature of the education process), terminology unification (19,3 %), internationalization (17,3 %), and integration (15,8 %). At the same time, pedagogues and psychologists admit that liberalization, implementation of applied aspects of sciences, and use of AI are less common for the Ukrainian educational institutions. The results show that 12,4 % of scientific and educational professional consider liberalization an obligatory feature of changes within pedagogy and psychology, implementation of applied aspects of sciences – 3,9 % and use of AI – only 0,3%

Figure 2

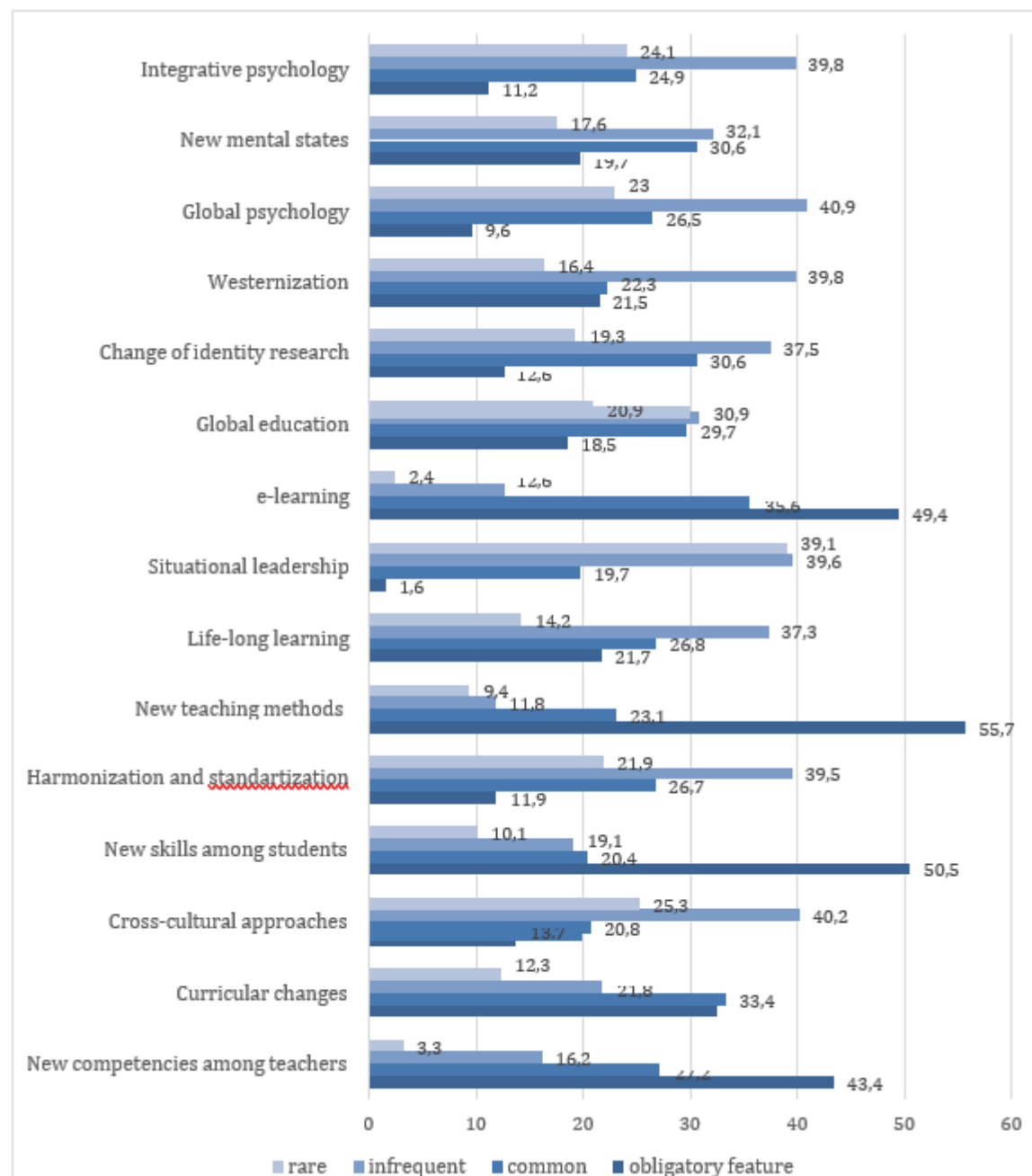
The Analysis of General Trends in Modern Pedagogy and Psychology (Based on the Closed Questionnaire)



Source: author's own development based on the survey results.

Figure 3

The Analysis of Specific Trends in Modern Pedagogy and Psychology (Based on the Closed Questionnaire)



Source: author's own development based on the survey results.

Figure 3 shows the findings concerning specific trends in modern pedagogy or psychology. We see that implementation of new teaching methods means obligatory trend for 55,7 % of scientific and educational professionals, development of new skills for successful educational activities – 50,5 %, e-learning – 49,4 %, development of new competencies among teachers – 43,4 %, introduction of curricular changes - 32,5 %, westernization of psychological concepts and research results– 21,5 %, use of life-long learning and information education – 21,7 %, emergence of new mental states caused by changes in community development 19,7 %. Only 12,6 %, consider change of identity research the less common trends, 9,6 % – the spread of global psychology, 11,2 % - application of concepts of integrative

psychology within the educational process and scientific investigations, and only 1,6 % of pedagogues and psychologists are sure that formation of situational leadership skills among future learners is an important trend.

At the same time while analyzing the trends in pedagogy and psychology in details and we found that they bring more advantages than disadvantages according to the scientific and educational professionals. The advantages are related to improvement of educational process, enhancement of participation in international research projects, implementation of unified concepts and terminology that simplifies the studies. Also, advantages concern formation of professional competence or professional expertise among teachers due to spread of innovative technologies and methods. Disadvantages are comparatively rare and they deal with implementation of requirements to acquire new competencies, undergo advanced training, or updating administrative documents and methodical materials. Besides, some trends, like the use of AI, may bring to violations of academic virtues and refusal from written tasks in future. Table 2 shows the analysis of positive and negative features of common trends in pedagogy and psychology.

Table 2

The Analysis of Features of Common Trends in Pedagogy and Psychology (Based on the Open Questionnaire)

Positive features according to scientific and educational professionals	Negative features according to scientific and educational professionals
General trends	
Typical for both pedagogy and psychology	
1) Liberalization	
Possibility to choose own teaching technologies and methods or to suggest own selective or optional course for students based on own expertise; Absence of outside influence while conducting the research project	Removal of economic limitations means lack of fundings for educational institutions at the state level
2) Internationalization	
Extension of international cooperation and collaboration: Creation of the European Higher Education Area; Introduction of internationally accepted research approaches interaction models	Necessity to update administrative documents and courseware; Requirement to possess high level of foreign language competency
3) Integration	
Interrelation between structural components of educational programme; Establishment of interdisciplinary links; Formation of integrated knowledge among students	Necessity to undergo additional training for scientific and educational professionals to teach integrated courses
4) Terminology unification	
Introduction of universal terms; Development of standards of pedagogical and psychological discourse	Requirement to have access to normative documents of international professional organizations like APA, etc.; Necessity to possess high level of foreign language competency
5) Digitalization and use of ICTs	
Extensive use of ICTs; Enhancement of students' motivation to learning; Fast information exchange; Simplification of educational process; Implementation of innovative teaching	Necessity to form digital literacy and information competency among teachers and students; Requirement to adopt educational programmes

technologies and updating the educational process according to students' needs	and methodical materials considering the use of ICTs
6) Extensive use of applied aspects of science	
Development of professional competence among students; Application of research results into practice of educational process	Requires carrying out time-consuming research; Involvement of many respondents for surveys and necessity to process big volumes of data; Requirement to conduct researches in different educational institutions simultaneously to obtain objective results
7) Introduction of artificial intelligence	
Possibility to collect data rapidly; Coping with difficult tasks related to text generation or modeling of human activities	Violation of academic virtue; Excessive use while performing individual projects; Necessity to change individual activities and exclude most of written tasks
Specific trends	
Typical for pedagogy	
8) Demand for new teachers' competencies	
Formation of teachers' readiness to new conditions of educational environment; Making educational process more efficient	Necessity to undergo regular advanced training
9) Curricular content changes	
Integration of educational programmes with students' needs and labour market requirements; Updating curriculum with internal and external factors of community development and technological advances	Requires work of big groups of professionals to update educational programmes and content for teaching disciplines
10) Implementation of cross-curricular approaches	
Makes international cooperation more effective; Involves participants from other nations to the research projects; Participation in international professional organizations	Requires understanding of foreign legal base; Demands knowledge of foreign language
11) Development of new skills among students, including professional competency	
Adaptation of educational process to students' needs and their future professional activities; Training future professionals to cope with challenges of dynamic community	Requirement to improve educational programmes on regular basis; Necessity to use additional equipment in the educational process, for engineering specialties in particular
12) Harmonization and standardization	
Implementation of universal educational standards	Exclusion of national specification in the educational process
13) Implementation of new teaching methods	
Implementation of innovative teaching methods; Formation of integrated professional competency and soft skills among students	Requires readiness of students to work in innovative manner; Necessity to improve the courseware on a continuing basis
14) Development of life-long learning and informal education	
Formation of professional competency among students; Preparation of learners to act in changing professional environment; Building expertise to use innovative equipment, methods, interaction models, communication strategies	Necessity to renew skills permanently; Formation of readiness to continuous learning among students
15) Introduction of situational leadership	
Formation of ability for innovative thinking and creative decision making	Requires introduction of new topics within the curriculum

16) Use of e-learning	
Creation of open education system; Formation of comfortable educational environment; Simplification of educational process	Inability to enhance communication and interaction skills among students; Demands extra time for development courseware; Requires digital competency among the participants of educational process
17) Development of global education	
Training students to work internationally	Removal of national specification from curriculum
Specific trends	
Typical for psychology	
18) Change in identity research	
Formation of international or global identity that can function under new conditions	An identity is studies only from one perspective
18) Implications for westernizing psychology	
Development of universal approaches in psychological science	Vanishing of cultural peculiarities
19) Development of "global psychology"	
Spread of international standards among psychological professionals	Spread of western studies and orientation towards single conceptualization of psychological research
20) Emergence of different mental states	
Improvement of studies; Development of new ideas and concepts	New mental states are caused by globalization processes
21) Introduction of integrative psychology	
Combination of different approaches and models of research	Research become more complicated and demand extra time for finalization

Source: author's own development based on the survey results.

Discussion

The profound literature review and the findings of close-open survey show that modern pedagogy and psychology face a number of trends appeared under the impact of globalization. Mostly, these trends bring improvements within the education system, process of future specialists' training, and in models of conducting psychological or pedagogical research due to its harmonization, internationalization, terminology unification, or digitalization. But also, new patterns cause a number of difficulties for scientific and educational professionals related to the requirements to acquire new competencies, to introduce life- long education, to update methodical materials. To avoid the difficulties detected we consider the task to outline the most applicable solutions within the frames of development of psychological and pedagogical sciences very urgent. The global sustainable development is oriented towards creation of comprehensive, inclusive, and quality education with life-long learning opportunities (Xiang & Yan, 2020). This type of education concerns the all-round development of personality, cultivation of learners' talents, formation their readiness to dynamic professional environment and application of practical innovations (Akbar et al., 2019; Xiang & Yan, 2020). As a result, new trends change pedagogy and psychology influencing their content, approaches, methods, concepts, interaction models, instruments and algorithms of organization of regular activities. According to Dichek et al. (2021), Paudel (2022), and Zajda (2020) the solutions are implemented in three levels: management, organizational, and individual.

Management level refers to changes within the organization of efficient activities of educational institution (Garg, 2022; Ge, 2022; Gu, 2021; Khan & Afaqi, 2019; Lee & Stensaker, 2021; Tight, 2022;

Zajda, 2020) and it includes: Provision of quality training of future specialists according to labour market requirements; Development of normative base in accordance with national legislation and international standards; Implementation of State standards of higher education and development of updated educational programmes; Harmonization of the curricular content with requirements of future professional activity and technological development of community; Organization of quality research activities and encourage implementation of scientific results within the educational process; Liberalization of pedagogical and research activities of scientific and educational professionals; Organization of adequate assessment of learning outcomes on the basis of internationally accepted models and test systems; Extension of international links and initiating of multilateral scientific or scientific and educational projects.

Organizational level deals with improvement of educational process within the institution and implementation of innovative technologies or methods (Canli & Demirtaş, 2018; Chesley et al., 2018; Douse & Uys, 2018; Feng, 2022; Paudel, 2022; Røe et al., 2022; Vera & Zapata-Jaramillo, 2022). The level suggests implementation of the following solutions: Implementation of interactive models of teaching and collaboration methods; Extensive use of gamification and game-based approach; Application of ICTs for new material presentation, practical training, and assessment of learning outcomes; relevant use of e- learning and introduction of flipped classroom technology or blended learning within the educational process; implementation of universal terminology in the classroom; development of skills for independent learning and encouragement to use project-based learning, peer learning, cascade learning; focus on applied aspects of sciences and introduction of practice in curricular; vary teaching technologies and methods in the classroom; search for appropriate research topics to solve the problems of psychological and pedagogical science; understanding of principles of global psychology and global education; improvement of methodical materials on regular basis according to the requirements of labour market or technological advances.

Individual level concerns the personality development of scientific and educational professionals as well as students (Akbar et al., 2019; Auziņa, 2018; Canli & Demirtaş, 2018; Dichek et al., 2021; Grimalda et al., 2018; Khera, 2022). The trends in pedagogy and psychology demand the building of new competencies and skills to be able to work in innovative environment. These qualities are the following: productivity, continuous development of universal qualifications, objectivity, collaboration skills, communication skills, foreign language knowledge, ability to participate actively within the educational process, readiness to independent research work, adoption of cross-cultural values, openness to innovations, ICT competence, digital literacy, information competency, critical thinking, readiness to use universal scientific concepts and interaction models, unified terminology, focus on applied aspects of sciences, implementation of student-centered education, extensive use the possibilities of life-long education and informal education in particular, advanced training on a continuous basis and improvement of teacher qualification, readiness to work in heterogenous teams, ability to develop the adequate knowledge and share them, orientation towards the result, relevant use of technological advances including AI.

Therefore, modern pedagogy and psychology face a number of trends under the impact of globalization processes. The trends are characterized by both positive and negative features. The solutions were outlined to enhance the development of psychological and pedagogical sciences and to increase the efficiency of educational process within the educational process. These solutions must be implemented by the institutions to organize their daily activities more effectively; by scientific and educational professional to plan teaching or research work, to develop methodological materials; or to reach objective findings while researching actual pedagogical or psychological problems.

Conclusions and Implications

The research proves that globalization is one of the main tendencies of the social community development and it causes a number transformations within psychological and pedagogical sciences. The findings show that pedagogy and psychology overcome significant changes as traditional knowledge paradigm ceases to be principal concept. It occurs mostly to the extension of globalization processes being described as the increasing interconnectedness and interdependence between system components. The study reveals that globalization is affects pedagogy and psychology through various channels.

We found that trends in modern pedagogy and psychology exist in a complex structure which comprises two groups of patters: general and specific. General trends are typical for both fields and influence upon their transformations equally. They include: liberalization, integration, terminology unification, digitalization, implementation of applied aspects of scientific knowledge, extensive use of AI. Specific trends include patters that characterize one of these sciences and consequently create peculiar approaches. Modern pedagogical trends include curricular content changes, implementation of cross- curricular approaches, development of new skills among students, including professional competency, harmonization and standardization, use of new teaching technologies and methods, life-long learning and informal education, situational leadership, e-learning, and popularization of global education. The development of psychology is characterized by implications for westernizing psychology, development of “global psychology”, emergence of different mental states, integrative psychology.

To analyze the trends of modern pedagogy and psychology and to study the practices of implementation of global solutions we conducted the close-open survey among 36 scientific and educational professionals in Ukrainian educational institutions who teach the disciplines related to psychological and pedagogical sciences or are also involved in research in this field.

The findings showed that most common general trends in modern pedagogy and psychology are the following: digitalization and use of ICTs, terminology unification, internationalization, and integration. At the same time, pedagogues and psychologists admit that liberalization, implementation of applied aspects of sciences, and use of AI are less common for the Ukrainian educational institutions. In the context of specific trends extension in modern pedagogy or psychology, they include: implementation of new teaching methods, development of new skills for successful educational activities, e-learning, development of new competencies among teachers, introduction of curricular changes, westernization of psychological concepts and research results, use of life-long learning and information education, emergence of new mental states caused by changes in community development. At the same the less common specific trends concern: change of identity research the less common trends, spread of global psychology, application of concepts of integrative psychology within the educational process and scientific investigations, and formation of situational leadership skills among future learners.

To respond to new challenges effectively, we outlined three groups of solutions that can be implemented in three levels: management, organizational, and individual. Management level refers to changes within the organization of efficient activities of educational institution. Organizational level deals with improvement of educational process within the institution and implementation of innovative technologies or methods. And individual level concerns the personality development of scientific and educational professionals as well as students. The findings show that implementation of solutions may

lead to the enhancement of psychological and pedagogical science and improve the efficiency of educational process within the Ukrainian institutions involved in training of future pedagogues and psychologists.

Suggestions for Future Research

The future research will be focused on the detailed qualitative and quantitative analysis of specific trends in innovating pedagogy and psychology implications as well as on the in-depth understanding of their impact upon pedagogical or psychological education, formation of professional readiness among future professionals in order to act in a digital and globalized environment. Also, it is important highlighting the changes within the content of pedagogical or psychological courses in different institutions of higher education based on the necessity to create an actual courseware. In addition, the study on the effect of these modifications upon the current state of formation of integrated professional competency of future experts in the fields is advisable. Considering the fact that the process of efficient training of future pedagogues and psychologists organization require a thorough comparison of past and present educational or methodical materials, the main attention will be drawn towards the investigation of educational components of syllabi of professional courses, the explanation of manifestation of trends in modern pedagogy and psychology, and the presentation of changes in indices of professional competency among future pedagogues and psychologists who undergo their professional training using new syllabi. It is expected to conduct an open survey among undergraduate students of pedagogical and psychological faculties in order to emphasize the improvements in the system of their professional training and to underline the gaps that may bring adverse effect in future. It is necessary to mention that the study may contain some limitation due to data collection in different institutions of higher education.

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Appendices

Appendix A

The Survey Respondents' Profiles

Code	Field of professional interests	Experience	Education	Students' level	Types of activities
SP1	Psycholinguistics	5 years	PhD	Bachelor	Research Lecturing
SP2	Organizational psychology	13 years	Master	Bachelor	Practical training Development of documents
SP3	Comparative education	2 years	Master	Bachelor	Practical training
SP4	Theory of pedagogy Education research methodology	27 years	Doctor of Sciences	Master Post-Graduate Advanced training	Research Development of documents Lecturing
SP5	Teaching methodology	19 years	PhD	Advanced training	Development of documents

						Lecturing Practical training Practical training
SP6	Psychology and mental health support	7 years	Master	Bachelor		Practical training
SP7	Pedagogical sciences	9 years	PhD	Bachelor		Practical training
SP8	Professional training	11 years	PhD	Bachelor		Development of documents Practical training
SP9	Foreign language teaching	4 years	Master	Bachelor		Practical training
SP10	Teaching methodology	10 years	PhD	Master		Research Lecturing
SP11	Career management	5 years	Master	Bachelor		Development of documents Practical training
SP12	Pedagogical sciences	16 years	Doctor Sciences of	Master Post-Graduate		Development of documents Research
SP13	Innovative teaching technologies	8 years	PhD	Bachelor		Practical training
SP14	Digitalization	6 years	Master	Bachelor		Development of documents Practical training
SP15	Cloud technologies	2 years	Master	Bachelor		Practical training
SP16	Comparative education	11 years	Master	Bachelor		Development of documents Practical training
SP17	Educational environment	9 years	PhD	Bachelor		Practical training
SP18	Psychological sciences	15 years	PhD	Bachelor		Research Development of documents Lecturing Practical training
SP19	Professional competency	23 years	Doctor Sciences of	Bachelor Master		Research Development of documents Lecturing
SP20	Soft skills	20 years	PhD	Bachelor Master		Research Development of documents Lecturing
SP21	Gamification ICTs	7 years	PhD	Bachelor		Development of documents Practical training
SP22	Psychological pedagogy	34 years	PhD	Master		Research Practical training
SP23	Age psychology	22 years	Master	Bachelor		Development of documents

						Practical training
SP24	Mental health	8 years	Master	Bachelor		Practical training
SP25	Social psychology	10 years	PhD	Bachelor Master		Development of documents Lecturing Practical training
SP26	Gender psychology	7 years	Master	Bachelor		Practical training
SP27	History of psychology and pedagogy	24 years	Doctor of Sciences	Master Post-Graduate		Research Development of documents Lecturing
SP28	Educational management Leadership	12 years	PhD	Master		Research Lecturing Practical training
SP29	Higher education methodology	9 years	PhD	Bachelor		Development of documents Practical training
SP30	Foreign language teaching	6 years	PhD	Bachelor		Research Practical training
SP31	Theory of upbringing Inclusive pedagogy	15 years	PhD	Bachelor		Research Practical training
SP32	Continuous learning	19 years	PhD	Bachelor		Research Development of documents Lecturing Practical training
SP33	Pedagogical sciences	25 years	PhD	Master		Research Lecturing Practical training
SP34	ICTs Distance learning	18 years	Master	Master		Research Development of documents Lecturing Practical training
SP35	Organization of psychological research	16 years	PhD	Bachelor		Research Development of documents Lecturing Practical training
SP36	Applied psychology	11 years	PhD	Bachelor		Research Lecturing Practical training

Source: author's own development on the basis of survey result.

Appendix B

The Form with Closed Questions Used During the Survey

Based on your experience decide how extended are the following trends in modern pedagogy and psychology
General trends
Typical for both pedagogy and psychology

1) Liberalization			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
2) Internationalization			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
3) Integration			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
4) Terminology unification			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
5) Digitalization and use of ICTs			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
6) Extensive use of applied aspects of science			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
7) Introduction of artificial intelligence			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
Specific trends			
Typical for pedagogy			
8) Demand for new teachers' competencies			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	
9) Curricular content changes			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
10) Implementation of cross-curricular approaches			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
11) Development of new skills among students, including professional competency			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
12) Harmonization and standardization			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
13) Implementation of new teaching methods			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
14) Development of life-long learning and informal education			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
15) Introduction of situational leadership			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
16) Use of e-learning			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
17) Development of global education			

a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
Specific trends			
Typical for psychology			
18) Change in identity research			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
19) Implications for westernizing psychology			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
20) Development of “global psychology”			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
21) Emergence of different mental states			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare
22) Introduction of integrative psychology			
a) very popular, obligatory feature	b) rather popular, common	c) neutral, infrequent	d) not popular, rare

Appendix C

The Form Used for Open Questionnaire

Describe positive or negative features you faced in modern pedagogy and psychology	
General trends	
Typical for both pedagogy and psychology	
1) Liberalization	
a) positive features	b) negative features
2) Internationalization	
a) positive features	b) negative features
3) Integration	
a) positive features	b) negative features
4) Terminology unification	
a) positive features	b) negative features
5) Digitalization and use of ICTs	
a) positive features	b) negative features
6) Extensive use of applied aspects of science	
a) positive features	b) negative features
7) Introduction of artificial intelligence	
a) positive features	b) negative features
Specific trends	
Typical for pedagogy	
8) Demand for new teachers' competencies	
a) positive features	b) negative features
9) Curricular content changes	
a) positive features	b) negative features
10) Implementation of cross-curricular approaches	
a) positive features	b) negative features
11) Development of new skills among students, including professional competency	
a) positive features	b) negative features

12) Harmonization and standardization	
a) positive features	b) negative features
13) Implementation of new teaching methods	
a) positive features	b) negative features
14) Development of life-long learning and informal education	
a) positive features	b) negative features
15) Introduction of situational leadership	
a) positive features	b) negative features
16) Use of e-learning	
a) positive features	b) negative features
17) Development of global education	
a) positive features	b) negative features
Specific trends	
Typical for psychology	
18) Change in identity research	
a) positive features	b) negative features
19) Implications for westernizing psychology	
a) positive features	b) negative features
20) Development of “global psychology”	
a) positive features	b) negative features
21) Emergence of different mental states	
a) positive features	b) negative features
22) Introduction of integrative psychology	
a) positive features	b) negative features

Source: author's own development.

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The Influence of School Management Information Systems and Teacher's Social Competence on the Parent Satisfaction of Junior High School Students

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Abstract: This research study aim is to determine the effect of management information systems, teacher social competence on the satisfaction of parents of students. In this research the following methods were used: quantitative, systematic, planned, and structured clearly and neatly. The data collection technique was the use of a questionnaire and observation. The questionnaire instrument was used in order to obtain data on parental responses of students related to school management information systems, and teacher social competence. In comparison, the observation instrument was used to collect secondary data from the features of the school management information system. The pre-research instrument testing on the questionnaire instrument was carried out to test the validity and constancy (reliability) of the statement items. In the next stage, descriptive data and inferential or

hypothesis test analyses were carried out. The results showed that there was a positive effect of management information systems ($p = 0.670$), teacher social competence ($p = 0.546$), and both variables are ($p = 0.810$) on the satisfaction of parents of Labschool Unesa 3 Junior High School.

Keywords: school management information system, teacher social competence, parent satisfaction

Introduction

Improving the quality of service is something that must be done by an institution or organisation to compete, including of them being an educational institution. Indonesia still has a major challenge in improving the quality of education, especially primary and secondary education. A report from Local Governance and Education Performance: Survey of Education Quality of Local Governance in 50 Indonesian Districts conducted by Beegle et al. (2013) shows that local governments have diversity in the quality of governance related to effective education services. In determining the success in service quality in the form of products and services, customer satisfaction must be considered to achieve the goal. As important as customers in a company, customers also have an important role in educational institutions. Therefore, a good quality education must be provided by educational institutions so that they can complete and provide satisfaction for their customers. The teaching target of social communication in the era of 4.0 must accommodate the role of technology (Atabekova et al., 2021; Chan, 2021; Coffelt et al., 2019). Educational system as teaching methods and medias changed ways of communication in world of educational system (Tsai et al., 2017; Zendler & Greiner, 2020).

Parents, as customers of educational institutions, not only have a role in choosing schools for their children but also play an important role in maintaining good relations with schools based on a sense of satisfaction with the results they experience. In this case, the school offers the programs that have been announced, as well as quality services. The existence of parental involvement should be able to create accountability pressure toward increasing professional work, school efficiency, and student achievement. However, this still needs to be improved by several factors, including problems with facilities and infrastructure, management, learning aspects, educators, administration, school administration staff, and aspects of graduates. In service education, there are several service dimensions, including the reliability, the responsiveness, the assurance, the empathy, and tangibles.

According to the previous study that has been conducted by Hendriyati et al. (2022) the lecturers and students can apply research methods with the SDLC (Software Development Life Cycle) model to produce a system that will later repair or replace the old system, through the design and implementation of a data management information system. In implementing policies for lecturers and students, this information system will provide formulations and descriptions to the leadership. According to Olimov and Mamurova (2022) the student does not learn modern information technology, but uses its products as a technical means of teaching. The teacher prepares for the lesson using modern technologies, organises the lesson, monitors the knowledge of students, and his task is to bring the highest level of information technology into the educational process to improve the content of education. According to Dubovyk et al. (2022) showed that the main assistants in developing children's emotional competence are, in one way or another, primary school teachers. Meanwhile, the study that has been conducted by Ybnu Taufan and Basalamah (2021) showed that the competence implementation factor encountered by the students' enthusiasm did not understand the teacher's wishes which resulted in their motivation

to study being mediocre. Furthermore, the increase in teacher motivation also often carries out remedial and enrichment, because students often miss lessons so that special guidance is needed in this case.

According to Kamal et al. (2021) showed that the teachers understand every aspect of social interaction of competences and the teacher's communication is not affective in terms of each social component. The teachers need social competence because they share their knowledge to the students. Therefore, the only teacher should learn a lot from communicating to be clear and cautious. In other words, teachers with social and emotional competence are better able to implement social and emotional curriculum more effectively because they provide outstanding examples of desired social and emotional behaviour (Parnawi & Taridi, 2018). Another study that has been conducted by Saudagar (2019) showed that the perspectives of effective communication provided by some field of studies hence do not only enhance the teacher's social competence but the perspectives also have a great potential to support the teacher's pedagogical competence (Saudagar, 2019). The social competency assessment instruments for teacher candidates in the fourth IR era developed are feasible to use, with several improvements (Rusijono et al., 2020). Meanwhile, the study has been conducted by Haryanto and Salvetri (2022) showed that the level of social competence of physical education teachers based on the principal's assessment is in the fairly good category. So that physical education teachers, school principals, and the government need to make programs so that the social competence of sports teachers can be improved.

Turban (in Rusdiana, (2018)) in his implementation explains the role of management information systems has several characteristics, as follows:

1. Operates on structured tasks, namely in environments that demand straightforward and firm decision making
2. Increases the efficiency by saving costs
3. Provides reports and ease of access that are useful for decision making

The school administration is one of the elements that must be owned in educational institutions. The role of the school administration greatly influences the functions and relationships between other components within the school. The elements contained in school administration include curriculum administration, personnel finances, students, and public relations. The many elements related to school administration cause the existing data to become increasingly complex and make communication to collect data even more difficult, thus requiring a system with connectivity or the ability to collect, connect and manage data quickly. It can be done by utilising information technology in building an integrated school management information system so that data management can be done easily.

Research Problem

The main function of the school management information system is to manage information concerned with education service. The purpose of the school management information system is to achieve work effectiveness and efficiency. Data-related matters were processed in hardware and software so that information processing for data security is effective. In the application of implementing a school management information system at Labschool Unesa 3 Junior High School in the form of a Smart School, which aims to be able to provide convenience in presenting information on school activities, bill payments, and financial transactions, and provide two-way communication services between the school and parents.

Research Focus

The focus of this research is to evaluate the influence that the application of school management information systems and social competence has on the satisfaction of parents of students at Labschool Unesa 3 Junior High School in Surabaya city. Quality education can meet the needs and expectations of customers with the provided services.

The management information system is implemented to make it easier for school principals making decisions. Rusdiana's (2018, p. 54) opinion explains the management information system approach applied to decision-making. Therefore, the management information system plays an important role in administrative management within the scope of the school.

One of the competencies that teachers must possess is social competence. It is stated in the government regulation no 19 of 2005 concerning Education Standards that teacher competence consists of pedagogical competence, personal competence, professional competence, and social competence. Teacher social competence is related to the teacher's ability to effectively and interestingly communicate and interact with students, fellow educators and education staff, parents or guardians of students, and other layers of society. Characteristics of teacher social competence include communicating politely, getting along effectively, having knowledge of human relations, mastering social psychology, and having appropriate skills.

The social competence as educational communication provides methods connecting people, understanding the teaching systems, teaching interaction and social interaction (Dhiu, 2017; Jomezai et al., 2021; Liu, 2020). The mastery of social competency factors positively contributes to the intensified application of leadership trilogy concepts in learning and teaching processes, meaning that the higher the mastery of social competence, the higher the intensified application of leadership trilogy concepts in learning and teaching processes (Pardimin et al., 2019). Professional teacher is supported by teacher social competence and work motivation. Both of these aspects are assumed to be able to improve teacher performance in managing classes (Lapita & Connie, 2020). Using this application, teachers and students have their own privilege to explore and develop advance learning. Their appliers on internet have facilities such as speech access, time optimisation, simplicity, efficiency and other supportable facilities (Asrial et al., 2020; Zhang et al., 2020).

The role of lecturers in the online learning process is demanded to be more active and creative in managing learning (Siahaan et al., 2021). The social competences are: Oral, writing and code competence, Using communication technology and information, Social relationship with people inside and outside educational environment, Building relationship effectively and efficiently. These social competences become social competence to achieve teaching target (Thompson et al., 2020). Meanwhile, the study has been conducted by Na'imah et al. (2020) showed that kindergarten teachers need to have social competence because teaching and educating work is always related to interactions with students and fellow teachers. The sense of humour makes teachers more relaxed and comfortable in doing their professional assignments. As it is explained through the Republic of Indonesia Standard National of Education Chapter 28 Verse 3 point D, social competence is teacher competence also known as society communication competences. These competences are used to construct effective communication to students, teachers, parents and other people both inside and outside the environment of education system (Gishti, 2018; Maulida et al., 2020; Tentama & Riskiyana, 2020).

A previous research from Abdullah (2020) explained that management information systems influence parental satisfaction. It is also supported by research submitted by Darwis and Mahmud

(2017), which states that academic information systems can increase school credibility with certain criteria tailored to the needs and goals of the school.

Increasing the social competence of teachers also contributes to the ability to create parental satisfaction. However, this previous study needed more discussion explaining the effect of the school management information system and the second teacher's social competence directly related to parental satisfaction. In addition, differences in location, the management information system model used, and the characteristics of the research subjects are the differences in this study from the previous ones.

There is a need for a research that discusses the influence of school management information systems and the social competence of teachers on parental satisfaction. Of course, this research is a reference for schools to develop management information systems so that school management becomes effective and efficient.

Research Methodology

General Background

This quantitative research has specific research methods that are systematically planned and structured from the beginning to the end. This quantitative research aims to obtain an explanation of the theory and laws of reality developed from mathematical models and hypotheses. This study also used a survey method with a correlational approach. The survey method was used with the consideration that the research was carried out to obtain data from each research problem from a natural place using questionnaires, tests, and structured interviews, based on the views of data sources.

Sample / Participants / Group

The participants of this research were the parents of students of Labschool Unesa 3 Junior High School amounting to 202 people, using the sampling method as a random sampling technique. Determine the number of sampling distribution in participants using Slovin's hypothesis and the following formula:

$$n = \frac{N}{N.d^2 + 1}$$

$$\begin{aligned} n &= \frac{202}{202 (0,05)^2 + 1} = \frac{202}{202 (0,0025) + 1} = \frac{202}{1,5} \\ &= 133,3 \\ &= 133 \text{ people} \end{aligned}$$

Instrument and Procedures

The main instrument used in this study was a questionnaire, while other supporting instruments were interviews and observations. The questionnaire was used to collect data about parents' opinions concerning the application of the school management information system. This questionnaire was prepared using a Likert scale which produces interval data. In addition to questionnaire data, researchers also used interview instruments to collect more in-depth data, while documentation instruments were used to collect reinforcing data in this study.

Data Analysis

The used data analysis technique is the descriptive analysis and the inferential analysis. The descriptive analysis is only concerned with providing information about data and circumstances. The parameters of the descriptive analysis are the mean, median, mode, standard deviation, and frequency. The Inferential analysis is an analysis that aims to produce a finding that can be generalised to the population area. In conclusion, there is a chance of truth and error, called the significance level. A requirement analysis test was also carried out with steps including the linearity test of the regression equation, the estimated error normality test, the homogeneity of variance test, and the research hypothesis test.

Table 1

Table of Analysis of Instrument Items Based on Research Data Parent's Satisfaction Variable

No	Statement	Respondent's Answer (%)					Result Analysis
		SA	A	N	DA	TDA	
1.	I'm satisfied with the friendliness of the staff Administration	22	65	11	2	1	The research results show that most (86%) parents are satisfied with administrative services and the rest (14%) dissatisfied.
2.	I am satisfied with the study room facilities that are owned school	26	60	10	2	2	Based on the results of the item analysis above, it shows that the majority (86%) of parents are satisfied with the study room facilities owned by the school and the rest (14%) are dissatisfied.
3.	I feel ignored by the teacher when needing service	2	7	15	44	33	Based on the results of the item analysis above, it shows that most (92%) parents feel cared by teachers when they need service and the rest (8%) feel ignored.
4.	I am satisfied with the friendliness of the teacher	40	53	6	1	0	Based on the results of the item analysis above, it is visible that most (93%) parents are satisfied with the friendliness of the teacher and the rest (7%) are dissatisfied.

5.	I am satisfied with the timeliness of the service	22	63	8	3	4	Based on the results of the item analysis above, it is visible that the majority (85%) of parents are satisfied with the timeliness of the service and the rest (15%) are dissatisfied.
6.	I am satisfied with the teacher's appearance	45	50	5	0	1	Based on the results of the item analysis above, it is visible that the majority (95%) of parents are satisfied with the appearance of the teacher and the rest (5%) were dissatisfied.
7.	I am satisfied with the means School communication	27	52	17	3	1	Based on the results of the item analysis above, it is visible that the majority (79%) of parents are satisfied with the means of communication owned by the school and the rest (21%) are not.
8.	I'm satisfied with the fulfilment of the promised service	20	51	20	5	3	Based on the results The analysis of the items above shows that the majority (71%) of parents are satisfied with the fulfilment of the services promised by the school and the rest (29%) are dissatisfied.
9.	Slow teacher in providing feedback	1	1	10	29	60	Based on the results of the item analysis above, it shows that the majority (98%) of teachers are quick in responding and the rest (2%) of teachers are slow in responding.
10.	I am satisfied with the teacher's ability teach	27	63	9	1	0	Based on the results of the item analysis above, it is visible that the majority (90%) of parents are satisfied with the teacher's ability in teaching and the rest (10%) are dissatisfied.
11.	I'm satisfied with the attention given by the teacher	35	58	8	0	0	Based on the results analysis of the items above it is visible that most (92%) parents are satisfied with the attention given by teachers to their children and the rest (8%) are not satisfied.
12.	I am satisfied with courtesy of school staff	33	59	8	1	0	Based on the results of the item analysis above, it is visible that most (92%) parents are satisfied with the

							courtesy of school staff and the rest (8%) are dissatisfied.
13.	I'm satisfied with the regulatory policies taken by the principal of the school	20	55	23	2	1	Based on the results the analysis of the items above shows that most (75%) parents are satisfied with the regulatory policies adopted by the school principal and the rest (25%) are dissatisfied.
14.	I am satisfied with the ease of service given school	22	54	21	2	1	Based on the results of the item analysis above, it is visible that most (76%) parents are satisfied with the ease of service provided by the school and the rest (24%) are not satisfied.
15.	I am satisfied with the service owned communication school	23	54	20	2	1	Based on the results of the item analysis above, it is visible that most (77%) parents are satisfied with the communication services provided by the school and the rest (23%) are not satisfied.
16.	I am satisfied with the attitude teacher's respect for students	32	59	9	0	0	Based on the results of the item analysis above, it is visible that most (91%) parents are satisfied with the teacher's respectful attitude toward students and the rest (9%) are dissatisfied.
17.	Promises given school can be realised	17	58	19	5	2	Based on the results of the item analysis above, it is visible that most (75%) think the promises made by the school can be realized properly and the rest (25%) not realised.
18.	The school facilities have not met my expectations	0	3	22	50	25	Based on the results of the item analysis above, it is visible that most (98%) of the facilities owned by schools are as expected and the rest (2%) are not as expected.
19.	Service the learning that my child receives is in line with expectations	32	56	11	2	0	Based on the results of the item analysis above, it is visible that most (88%) of the learning services received by students are in accordance with expectations and the rest (12%) are not as expected.

20.	The administrative services that I received were as expected	20	62	14	2	1	Based on the results of the item analysis above, it is visible that most (83%) of the administrative services received by parents are as expected and the rest (17%) are not as expected.
21.	Information provided school as expected	24	59	14	3	1	Based on the results of the item analysis above, the majority (83%) of parents were provided by the school information and it was in line with their expectations and the remainder (17%) did not meet the expectations.
22.	I still go to school That my son graduated	54	44	2	0	0	Based on the results of the item analysis above, it is visible that the majority (98%) of parents still send their children to the graduated schools (2%)
23.	I recommend this school to others	34	50	15	2	0	Based on the results of the item analysis above, it is visible that the majority (83%) of parents would recommend this school to others and the rest (17%) would not recommend.
24.	I assure others about superiority program at my son's school.	29	50	18	3	0	Based on the results of the item analysis above, it is visible that most (79%) parents will convince others about the superiority of the school program and the rest (21%) will not convince others.
25.	I tell to others about the advantages of my child's school	32	51	15	2	0	Based on the results of the item analysis above, it is visible that the majority (83%) of parents tell others about the advantages of the school and the rest (17%) do not tell.
26.	I often complains to the school	2	4	14	41	39	Based on the results of the item analysis above, it is visible that most (95%) parents rarely complain to school and the rest (5%) often complain.
27.	I give negative feedback on school	2	4	11	35	50	Based on the results of the item analysis above, it is visible that the majority (95%) of parents provide positive feedback on school quality

							services, and the rest (5%) gave negative feedback.
28.	Suggestions what I gave was ignored	2	6	18	37	37	Based on the results of the item analysis above, it is visible that the majority (92%) of parents' suggestions were responded well and the rest (8%) were ignored.
29.	Relative school funding affordable	26	43	26	4	2	Based on the results of the item analysis above, it is visible that most (68%) according to parents, school financing is relatively affordable and the rest (32%) are not affordable.
30.	School funding in accordance with quality which are given	26	51	17	5	2	Based on the results of the item analysis above, it is visible that the majority (77%) according to school financing people are in accordance with the quality provided and the rest (23%) are not appropriate.

Information :

SA : Strongly Agree A : Agree

N : Neutral

DA : Don't Agree

TDA : Totally Disagree

Table 2

Analysis of Instrument Items Based on Research Data Educational Management Information System Variables

No	Statement	Respondent's Answer (%)					Result Analysis
		SA	A	N	DA	TDA	
1.	The Smart School application system is accurate in providing information	20	56	20	5	0	The results of the item analysis above show that most (76%) that the Smart School application system is accurate in providing information and the rest (24%) are inaccurate.
2.	I found no problems in the use of the current Smart School application	14	47	29	6	3	The results of the item analysis above show that the majority (62%) of parents found no problems when using the Smart School application and the rest (38%) found problems.

3.	Application Performance Smart School is slow	2	14	31	40	13	The results of the item analysis above show the most (83%) of the Smart School application performance is fast and the rest (17%) is slow.
4.	I can recognise the menu display in the Smart School application properly.	16	60	19	4	1	The results of the item analysis above show the most (76%) parents easily recognise the display menu in the Smart School application and the rest (23%) find it difficult to recognise.
5.	The Smart School application is responsive when used	17	53	23	6	1	The results of the item analysis above show the most (71%) of the Smart School applications are responsive when used and the rest (29%) are not responsive.
6.	I understand the features in the Smart School application	15	59	25	2	0	The results of the item analysis above show that the majority (74%) of parents understand the features that is in the Smart School application and the rest (29%) don't understand.
7.	The Smart School application makes it easy school payment transactions	20	54	18	6	1	The results of the item analysis above show the majority (74%) of the Smart School applications facilitate school payment transactions and the rest (26%) do not.
8.	I find it difficult to use the Smart School application	2	11	26	39	21	The results of the item analysis above show the most (86%) parents find it easy or easy to use the Smart School application and the rest (14%) have difficulty.
9.	The Smart School application makes it easy for me to view information about my child	19	48	24	8	1	The results of the item analysis above show the most (67%) of the Smart School applications make it easy for parents to view information and the rest (33%) do not make it easy for parents to view information.
10.	I can understand the display of information on the Smart School application	17	54	26	1	2	The results of the item analysis above show the most (71%) parents can understand the information display on the Smart School application and the rest (29%) do not understand.
11.	The logging in/entering the Smart School application is difficult	6	8	27	38	21	The results of the item analysis above show the most (86%) logging in/entering the Smart School application is easy and the rest (14%) is difficult.

12.	The data I receive from the Smart School App is correct	16	59	20	5	1	The results of the item analysis above show that the most (75%) of the data parents receive is from the application Smart School is right and the rest (25%) are not right.
13	I get information quickly from the app Smart School	17	45	31	5	2	The results of the item analysis above show the most (62%) parents get information quickly from the Smart School application and the rest (38%) are slow.
14	I'm having a hard time getting it information on the Smart School application	4	8	35	36	17	The results of the item analysis above show the most (88%) parents do not find it difficult to obtain information on the Smart School application and the rest (12%) find it difficult.
15.	The information provided by the Smart School application on time	15	51	29	3	2	The results of the item analysis above show the majority (66%) the information provided by the Smart School application is timely and the rest (34%) are not on time.
16.	The information obtained from the Smart School application can be trusted	21	59	20	1	0	The results of the item analysis above show the most (80%) of the information obtained from the Smart School application can be trusted and the rest (20%) cannot be trusted.
17.	The information I get from the Smart School application is objective	16	60	23	2	0	The results of the item analysis above show that the most (76%) of the information that parents get from the Smart School application is objective and the rest (24%) is not objective.
18.	I find it easy when using the Smart School application	16	53	28	3	0	The results of the item analysis above show that most (69%) parents find it easy to use the Smart School application and the rest (31%) find it difficult.
19.	I'm reluctant to use the Smart School application to obtain my child's information	4	12	25	35	25	The results of the item analysis above show that the majority (84%) of parents do not hesitate to use the Smart School application to obtain information my son and the rest (16%) feel shy.
20.	I gave negative feedback to the Application Smart School	2	11	14	36	38	The results of the item analysis above show that most (87%) parents provide positive feedback on the Smart School

							application and the rest (13%) give feedback negative.
21.	The Smart School application meets my needs	14	47	34	2	3	The results of the item analysis above show that most (61%) of the Smart School applications are in accordance with the needs of parents and the rest (39%) do not meet their needs.
22	I tell others about the advantages of the Smart School application	10	44	35	11	2	The results of the item analysis above show that the majority (53%) of parents tell about the advantages of the Smart School application to other people and the rest (47%) do not tell.
23	The Smart School application complies with current technological developments	21	59	18	2	0	The results of the item analysis above show that the majority (80%) of Smart School applications are in accordance with technological developments now and the rest (20%) is not appropriate.
24	The Smart School application is interesting to use	20	46	31	3	0	The results of the item analysis above show that most (66%) of the Smart School applications are interesting to use and the rest (34%) are not interesting.
25	Features displayed by the Smart School application boring	1	11	29	38	22	The results of the item analysis above show that most (89%) of the features displayed by the Smart School application are not boring and the rest (11%) are boring.
26.	I feel happy with existence the Smart School application	17	46	29	9	0	The results of the item analysis above show that the majority (62%) are happy with the existence of the application Smart School and the rest (38%) are unhappy.
27.	The features in the Smart School application system are inadequate	2	14	27	41	17	The results of the item analysis above show that the most (84%) features in the Smart School application are adequate and the rest (16%) are inadequate

28.	The performance of the Smart School application is in line with hope	15	44	35	5	1	The results of the item analysis above show that most (59%) of the performance of the Smart School application is in line with expectations and the rest (41%) not as expected.
29	I am satisfied with the information provided on the Smart School application	19	43	32	5	1	The results of the item analysis above show that most (62%) parents are satisfied with the information provided in the Smart School application and the rest (38%) are dissatisfied.
30	The Smart School application is useful for me	21	44	32	3	0	The results of the item analysis above show that most (65%) Smart School apps are useful to people old and the rest (35%) are not yet useful.

Information :

SA : Strongly Agree A : Agree

N : Neutral

DA : Don't Agree

TDA : Totally Disagree

Table 3

Analysis of Instrument Items Based on Research Data Teacher Social Competency Variables

No	Statement	Respondent's answer (%)					Result Analysis
		AL	OF	ST	SL	NV	
1.	Teacher communicates politely	69	30	1	0	0	Based on the results of the item analysis above, it is shown that most (99%) teachers communicate politely and the rest (1%) teachers don't polite.
2.	Teachers communicate openly	52	44	5	0	0	Based on the results of the item analysis above, it is shown that most (95%) teachers communicate openly and the rest (5%) teachers are not open.

3.	The teacher gives clear information when communicate	53	43	4	0	0	Based on the results of the item analysis above, it is shown that the majority (96%) of teachers provide clear information when communicating and the rest (4%) teachers are not clear in giving information.
4.	I feel restless when communicating with the teacher	2	7	10	29	53	Based on the results of the item analysis above, it is shown that most (92%) parents feel calm when communicating with teachers and the rest (8%) parents feel nervous.
5.	The teacher communicates accordingly conversation context	48	47	4	1	0	Based on the results of the item analysis above, it is shown that the majority (95%) of teachers communicate according to the context of the conversation and the rest (5%) out of context.
6.	The teacher understood what I was saying at the time of communication	43	53	5	0	0	Based on the results of the item analysis above, it is shown that the majority (95%) of teachers understand what I convey when communicating and the rest (5%) the teacher does not understand.
7.	Inter-communication teachers are well connected	53	40	5	2	0	Based on the results of the item analysis above, it is shown that most (93%) communication between teachers is well established and the rest (7%) communication is not well established.
8.	There is communication between the teacher and me well	54	40	4	2	0	Based on the results of the item analysis above, it is shown that most (94%) communication between teachers and parents is well established and the rest (6%) communication is not well established.
9.	Teacher surly when meet	2	5	4	23	66	Based on the results of the item analysis above, it is shown that the majority (93%) of teachers have attractive faces when they meet their parents and the rest (7%) of teachers have surly faces.
10.	Between fellow teachers speak in harsh language	2	2	2	14	80	Based on the results of the item analysis above, it is shown that the majority (95%) of fellow teachers

							speak the good language, and the rest (5%) of teachers do not use good language.
11.	The teacher watched me while talking	46	49	5	1	0	Based on the results of the item analysis above, it shows that most (95%) teacher pay attention to parents when talking and the rest (5%) teachers don't pay attention.
12.	The teacher appreciates the opinion I give	48	43	7	2	1	Based on the results of the item analysis above, it shows that most (91%) teachers appreciate the opinion I gave and the rest (9%) teachers don't appreciate it.
13.	The teacher gave me the opportunity to express my opinion	52	41	6	2	0	Based on the results of the item analysis above, it is shown that most (92%) teachers gave me the opportunity to express my opinion and the rest (8%) teachers did not give me the opportunity.
14.	The teacher can understand what I convey	33	48	17	1	2	Based on the results of the item analysis above, it is shown that most (81%) teachers can understand what I convey and the rest (19%) teachers do not understand.
15.	Teachers are opened to all circumstances happen	39	47	11	2	1	Based on the results of the item analysis above, it is shown that the majority (86%) of teachers are open to all the circumstances that occur and the rest (14%) are closed teachers.
16.	The teacher always tells the truth	47	42	10	1	0	Based on the results of the item analysis above, it is shown that most (89%) teachers tell the truth and the rest (11%) teachers lie.
17.	The teacher is willing to help me	50	44	5	1	0	Based on the results of the item analysis above, it is shown that the majority (94%) of teachers are willing to help parents and the rest (6%) teachers are not willing.
18.	The teacher gives input when a problem occurs	47	45	6	1	1	Based on the results of the item analysis above, it is shown that the majority (92%) of teachers provide input when problems occur and the rest (8%) do not provide input.

19.	Teachers are active in various activities	46	46	8	0	1	Based on the results of the item analysis above, it is shown that the majority (92%) of teachers are active in various activities and the rest (8%) teachers are not active.
20.	The teacher cares about the surroundings	43	49	6	2	0	Based on the results of the item analysis above, it is shown that most (92%) teachers care about their surroundings and the rest (8%) teachers don't care.
21.	The teacher provides a solution of existing problems	41	47	11	0	0	Based on the results of the item analysis above, it is shown that the majority (89%) of teachers provide solutions to existing problems and the rest (11%) did not provide a solution.
22.	The teacher gives motivation to my child	50	43	8	0	0	Based on the results of the item analysis above, it is shown that the majority (92%) of teachers provide motivation to students and the rest (8%) do not provide motivation.
23.	The teacher creates an atmosphere that comfortable	50	43	7	0	0	Based on the results of the item analysis above, it is shown that most (93%) teachers create a comfortable atmosphere and the rest (7%) teachers do not create a comfortable atmosphere.
24.	Teachers are discriminatory	2	6	7	22	63	The above points show that the majority (92%) of teachers are fair and the rest (8%) are discriminatory.
25.	Teachers are prejudiced against others	2	2	6	21	69	Based on the results of the item analysis above, it is shown that most (96%) teachers are prejudiced against others and the rest (4%) teachers are prejudiced.
26.	Teachers are active in providing information on the Smart School application	21	26	34	11	8	Based on the results of the item analysis above, it is shown that most teachers (53%) are passive in providing information in the Smart School application and the rest (47%) active teacher.
27.	Teachers use technology information and communication in learning	29	43	20	5	3	Based on the results of the item analysis above, it is shown that the majority (72%) of teachers use information and communication

							technology in learning and the rest (28%) teachers do not use.
28.	Information provided by the teacher through the media digital I can understand	29	42	22	3	4	Based on the results of the item analysis above, it is shown that most (95%) of the information provided by teachers through digital media can be understood by parents and the rest (5%) by parents do not understand.
29.	Communicate with teachers via smartphones confuse me	2	3	18	25	52	Based on the results of the item analysis above, it is shown that the majority (95%) communicate with teachers via smartphones make parents understand and the rest (5%) parents are confused.
30.	Teachers use smartphones in provide information	46	44	9	1	0	Based on the results of the item analysis above, it is shown that the majority (90%) of teachers make use of it smartphones in providing information and the rest (10%) do not utilise smartphones in provide information.

information.

Information :

AL : Always OF : Often

ST : Sometimes SL : Seldom

NV : Never

Research Results

Based on the results of the study, data on parental satisfaction were obtained with an average score of 122.88 and a mode of 120. The frequency distribution of parental satisfaction (Y) is presented in the following table:

Table 4

Frequency Distribution of Parental Satisfaction

Interval Class	Frequency (Fi)	Frequency	
		Percentage (%)	Percentage Cumulative (%)

78-86	2	1,5	1,5
87-95	6	4,5	6,0
96-104	4	3,0	9,0
105-113	17	12,8	21,8
114-122	42	31,6	53,4
123-131	23	17,3	70,7
132-140	21	15,8	86,5
141-149	14	10,5	97
150-158	4	3,0	100
Amount	133	100	

Based on the table above, the highest frequency score is in the fifth interval class of 31.6%, namely in the score range 114 - 122, with the number of parents with an average satisfaction frequency score of 122.88 as many as 42 people (31.6 %). In comparison, those with an above-average score were 62 (46.6%), and an average score was 29 people (21.8%). It means that the number of parents with an average and above average percentage of satisfaction scores indicates a higher position of 78.2%, which means that the parental satisfaction is relatively good/effective.

The school management information system frequency distribution data (X1) is presented in the following table:

Table 5

Frequency Distribution of School Management Information Systems (X1)

Interval Class	Frequency (Fi)	Frequency	
		Percentage (%)	Percentage Cumulative (%)
64-74	2	1.5	1,5
75-85	4	3.0	4,5
86-96	23	17.3	21,8
97-107	21	15.8	37,6
108-118	38	28.6	66,2
119-129	24	18.0	84,2
130-140	9	6.8	91
141-151	12	9.0	100
Amount	133	100	

Based on the table above, the highest frequency score is in the fifth interval class of 28.6%, namely in the score range 108 - 118, with the number of education management information systems having an average frequency score (of 112.62) of 38 people (28.6%). In comparison, those with an above-average score were 45 (33.8%), and an average score was 50 people (37.6%). It means that the number of

educational management information systems with an average and above average percentage score indicates a higher position, namely 62.4%. It means that the education management information system at Labschool Unesa 3 Junior High School is relatively effective or good.

The frequency distribution data for teacher social competence averages is 130.02 and the mode is 150. The complete display of the distribution data for teacher social competence frequency (X2) is presented in the following table:

Table 6

Frequency Distribution of Teacher Social Competence (X2)

Interval Class	Frequency (Fi)	Frequency	
		Percentage (%)	Percentage Cumulative (%)
90-97	5	3.8	3,8
98-105	3	2.3	6,1
106-113	8	6.0	12,1
114-121	24	18.0	30,1
122-129	21	15.8	45,9
130-137	28	21.1	67
138-146	25	18.8	85,8
147-154	19	14.2	100
Amount	133	100	

Hypothesis testing

The effect of school management information systems (X1) is on parental satisfaction (Y). The magnitude of the influence is indicated by the coefficient of determination R² (R square) = 0.449, which means that the education management information system influences the parental satisfaction by 44.9%, and other factors determine the remaining 55.1%.

Table 7

The Influence (Coefficient of Determination) of the School Management Information System on Parents' Satisfaction

Model Summary				
Model	R	R Square	Adjusted R Square	Std. The error of the Estimate
1	,670 ^a	,449	,445	11,241
a. Predictors: (Constant), School Management Information System				
b. Dependent Variable: Parent's Satisfaction				

The effect of teacher social competence (X2) on parental satisfaction (Y) is shown by the coefficient of determination R² (R square) = 0.558, which means that the social competence influences parental satisfaction by 55.8%, and the remaining 44.2% is determined by other factors.

Table 8

The Magnitude of Influence (Coefficient of Determination) of Teacher's Social Competence on Parents' Satisfaction

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,747 ^a	,558	,554	10,074
a. Predictors: (Constant), Teacher's Social Competence				
b. Dependent Variable: Parent's Satisfaction				

The influence of school management information systems and teacher social competence is shown by the coefficient of determination R² (R square) = 0.656. It means that education management information systems and teacher social competence influence parental satisfaction by 65.6%, and other factors determine the remaining 34.4%.

Model Summary				
Model	R	R Square	Adjusted R Square	Std. The error in the Estimate
1	,810 ^a	,656	,650	8,920
a. Predictors: (Constant), Teacher's Social Competence, Management Information System				
b. Dependent Variable: Parent's Satisfaction				

Discussion

The Effect of School Management Information Systems on Parental Satisfaction

Based on this analysis, the school management information system influences the parental satisfaction. A good school management information system as an effective information service will significantly increase the parental satisfaction. In line with the results of this study, Yakub and Hisbanarto (2014), in their book, argue that educational information services are an effort to achieve customer satisfaction by meeting users' needs and making continuous improvements to the provided services. Management information system is a supporting tool for educational organisations capable of providing information services according to the users' needs, is easy to obtain, and has an impact on improving the quality of education. Sulisworo and Siswanto (2019) research showed that schools need to do better promotion and introduction to parents. This action is expected to be able to increase parents' understanding of the education process held by schools

The Effect of Teacher's Social Competence on Parents' Satisfaction

Based on this analysis, the teacher's social competence influences the parental satisfaction. The increase of Teacher Social Competence will increase the parental satisfaction and vice versa. According to Mulyasa (2019) it follows that the teacher's social competence is the teacher's ability to communicate and interact with students, education, and also parents as well as politely behave with the surrounding community. Furthermore, according to Stapleton (2002) in his book *Executive's Guide To Knowledge management*, the good and effective communication is a foundation for ensuring customers' satisfaction.

The Influence of School Management Information Systems and Teacher Social Competence on Parents' Satisfaction

Based on the tested hypothesis, it arises that there is a positive and significant influence between the School Management Information System and the Teacher Social Competence together with Parent Satisfaction at Labschool Unesa 3 Junior High School. It is indicated by the strength of influence or correlation coefficient of 0.810 at a 99% confidence level ($\alpha = 0.01$), while the magnitude of the influence of the R-square coefficient of determination is 0.656. It means that the School Management Information System and Teacher Social Competence both have an influence with parental satisfaction of 65.6% and the remaining 34.4% is determined by other factors. For the direction of influence or the regression obtained coefficient $\hat{Y} = 11.706 + 0.316X_1 + 0.581X_2$ that means that every unit increase in the score of the school management information system and teacher social competence will affect the increase in the parental satisfaction score of 0.897 (strong correlation).

Based on this analysis, the school management information system and the social competence of teachers both are factors that influence the parental satisfaction. An increase will follow an appropriate and good school management information system in the satisfaction of parents of students, and an increase in the social competence of teachers will follow in the satisfaction of parents of students.

Based on the discussion above, there is an influence of school management information systems and the social competence of teachers on parental satisfaction together. The school management information system influences the parental satisfaction. It means that a good school management information system as an effective information service will increase the parental satisfaction. The teacher's social competence influences the parental satisfaction. Increasing Teacher Social Competence will increase the parental satisfaction and vice versa. So that, if both aspects of the school management information system and teacher social competence are good enough, it will increase the parental satisfaction.

Conclusions and Implications

This study concludes that there is an influence of school management information systems and the social competence of teachers on parental satisfaction. The results of this study have implications for several moments in the world of education. First, a school management information system can help school institutions be more effective in the goals achievement. Second, a good teacher's ability to communicate and interact with parents will help parents better understand their child's development and create a sense of satisfaction with the services provided by the school.

Suggestions for Future Research

Taking into account the significant influence between Education Management Information Systems and Teacher Social Competence on parental satisfaction, school leaders must constantly improve their teachers' competence in various ways, such as through training, seminars, and competitions. Its vital providing motivation and things that make teachers increasing their acquaintance in understanding, communicating and interacting with parents and the community so that parental satisfaction can continue to increase. In further research, the development of application features that make it easier for teachers to develop their competencies in preparing children's learning activities can be deepened. Variables on other teacher competencies, such as professional, pedagogic, and personality competencies can also be further developed. These variables can be combined with the school management information system. Apart from that, features to make it easier for parents to supervise their children's learning could be developed. Other variables, such as the cultural differences and socioeconomic conditions of the family, may be considered to be explored in the future studies.

Finally, in addition to teachers and parents, further research could include student variables, namely measuring student satisfaction with the implementation of an education management information system. Information should be collected from students. Namely information about the features that is useful to them in the learning process. All this can provide a big amount of information for the education management information system.

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Evaluating Future Teacher Competencies in the Face of Contemporary Global Challenges: A Comprehensive Analysis

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Abstract: A highly qualified teacher of the future should demonstrate to students the highest performance and expected results of their activities after completing the proposed tasks and activities. At the same time, the professional teacher of the future should take care of the adaptation of students and the fact of their diversity by changing teaching strategies and learning materials that are appropriate to the age, prior learning, cultural values, and individual needs of the educational program.

The role of the teacher in the future is to ensure the formation and education of the personalities of new generations and their professional training within educational institutions, closely related to life, social and professional, moral, and civic activities. Therefore, the purpose of the article is to analyze the problems of forming the skills and personality traits of a teacher that would cause reverberations in students for many years after graduation. The work uses general scientific and special scientific research methods, adheres to the principles of objectivity, scientificity, specificity, and systematicity to argue for the normative reason, of updating the system of professional competencies in an increasingly globalized, multicultural, diverse, and complex environment marked by digital technologies and transformations. It is about the need to change the system of acquiring thorough knowledge to mobilize the professional achievements of teachers. This is the whole point of rewriting the common core of knowledge, skills, and culture envisioned by the Ukrainian education reform. Search engines have identified more than 100 articles on pedagogy. As a result of the selection and verification process, only 21 state-of-the-art sources from 2021-2022 were selected (given the novelty of the proposed scientific research). The results address the problem of professional competence development in European countries. The generalization of the characteristics of the teacher of the future in the context of the global challenges of our time is made based on the contrast of the experiences of the described countries and the general opinion of the participants in the relevant forum. Thus, the reference base of professional competencies for pedagogical and educational professions should reflect the developments in the training of teachers and pedagogical staff in the context of the new Ukrainian education system.

Keywords: pedagogical professional competences, educational strategies, education of the future, pedagogical culture, educational process

Introduction

A traditional teacher performs such functions at school as an organizer of the educational process, an educator, an education partner, or a member of the teaching staff, and the educational process. According to Bardach et al. (2022), a good teacher of the future, as an organizer of learning, should combine objective and logical aspects of knowledge transfer with psychological aspects. Therefore, in the future, he or she should be focused on the application of didactic principles, learning theory in the transfer of educational content, and the psychological consequences of the act of transfer. Today, the psychology of child evolution, the psychology of learning, and communication strategies are at the center of the pedagogical process (Isac et al., 2022).

In this aspect, it should be noted that the teacher of the future should not only be a transmitter of information, which is to give instructions to students on how to learn and the materials they need to study, but also a coach who, through analytical questions that stimulate students' thinking, creates prerequisites for them to find out the answer on their own, to achieve a better understanding of the problems. In this sense, the teacher of the future can be equated to a tutor. The implementation of the tutor function depends on the concept underlying the meaning given to the school and its organization, on how the teacher understands his or her mission, on the set of tasks included in the position of a teacher, and last but not least, on the attitudes of parents (Skantz-Åberg et al., 2022).

With each new generation of teachers, the teaching function of the teacher is expressed by fulfilling the status of a model, partner, and advisor.

It is achieved by creating a general atmosphere of safety and trust in the classroom, encouraging the success of each student, and creating a flow of empathy between teacher and students (Leijen et al., 2022). To “educate” means to operate under moral categories, forcing students to critically distance themselves from their own attitudes and performances, developing their ability to establish positive relationships, and critically analyzing their own biases.

In the future, the concept of an educational partner will refer to the relationship of the teacher with other educational factors, especially parents, and to the concept that teachers and students together form a school community. The school is the second example of socialization, after the family, and the teacher must cooperate with all educational factors, harmonizing formal education with non-formal education. They can play the role of counselors and share responsibility for children's education in the family (Kruszewska et al., 2022).

The qualifications of a traditional teacher include a range of classroom management skills, from those related to arranging the physical environment of the classroom in a way that facilitates interaction between teachers and students, setting reasonable boundaries with students within which everyone's behavior should be counted, and ending with those related to creating a relaxed working atmosphere that encourages students to exercise constant self-control and to develop skills for properly handling indiscipline (Jegstad et al., 2022). However, we believe that teachers of the future should also encourage social interaction among students when discussing and conducting various learning activities related to the topic under study. In addition, they should provide students with a working structure capable of managing students' learning activities and behavior during the lesson, facilitating students' intellectual processing of information by putting them in a position to carry out activities related to cognitive processes that will help them learn and remember information (Lavrysh et al., 2022). For proper professional activity in the future, a teacher needs to be confident in themselves and their professional competencies, learn ways to deal with critical, tense, or conflict situations, be able to manage typical situations, and be able to develop solutions for atypical situations. All these and many other skills are indispensable in the work of a teacher.

For this reason, a teacher must be committed to students and learning. Since they do not work with just one student, they must consider that students are different and that the differences between them affect learning. To accommodate individual differences, teachers need to know their students very well. This type of understanding is important because the teacher has to constantly use it to shape their teaching methods (Zaporozhchenko et al., 2022).

Thus, the qualification and role of the teacher of the future will be to help students create their own value system at school. The correct process of structuring and crystallizing a child-specific system of values shapes the consciousness of a worthy citizen.

Research Problem

The analysis of professional competencies in the characterization of the teacher of the future in the context of global challenges of our time aims to draw the attention of key stakeholders in this area to the issue of formulating a skills profile for teachers in Ukraine and to contribute with proposals for its development and implementation.

Research Focus

From the perspective of characterizing the teacher of the future, we propose a model for developing professional competencies aimed at promoting the quality of human resources in education as a priority. Ukraine's education system is characterized by humanism and democracy, striving to form deep ties with tradition and develop respect for other cultures in students. Thus, Ukraine needs educators who are competent, motivated, democratic, open to intercultural dialogue, autonomous, respected, and encouraged to learn. To this end, we propose an approach consisting of four actions aimed at increasing the competence of future generations of teachers: democratic construction of a profile of teacher competence, uniting key stakeholders in the educational process around the principles of building initial teacher education programs, testing improved models of teacher education, recognizing and funding research in the field of pedagogical sciences in the field of teacher education as an alternative to career development and a resource of knowledge and know-how for educational change.

Research Aims and Research Questions

In order to achieve this goal, the paper conducts a comparative analysis of international experience and key characteristics of the professional competencies of an ideal teacher. We argue that the quality of human resources in education, in particular teachers, is the result of both formal specialized training and the aspirations of teachers, and that the competence profile is a useful and even necessary tool for improving the quality of education in Ukraine.

Research Methodology

General Background

The methodological basis for the study of professional competencies in the characterization of the teacher of the future is general scientific methods that focus on forecasting and modeling. The prospects of the strategy can be determined by analyzing (both systematic and comparative) all potential variables that may affect the potential professional level of pedagogical competencies. Scientific and pedagogical methods determine the theoretical and practice-oriented components of professional competencies. The philosophical methodology of synergetics provides an understanding of the interaction of fundamental and flexible skills of a teacher, which will be relevant in the education system in the short term and may have prospects of demand in the long-term strategy.

Sample, Participants, Group

The characteristics associated with a highly qualified teacher may be similar or different from period to period or from group to group (e.g., different social categories, regions, or countries). In the context of this work, the construction of the competence profile and its formalization includes two stages of work. The first stage was the organization of an online forum. 78 participants took part in the debates organized on their own Facebook page. The dialogues about education were joined by 18 ordinary users and 60 teachers, as well as representatives of institutions, non-profit organizations, and companies. In the Google registration form and during the forum itself, participants expressed their opinions about the knowledge, skills, attitudes, and aspirations that teachers will need in the future. The paper summarizes the opinion on the characteristics of the teacher of the future, but it does not reflect the position of the author and is interpreted as the result of a narrow study as a starting point for formulating and selecting specific competencies from all possible options.

The second stage of the work was a comparative analysis of professional competencies in the characterization of the teacher of the future in contrast to other countries: Ukraine, Estonia, Poland, and Finland.

The resulting profile reflects a compromise between technical arguments (psycho-pedagogical and/or didactic) and the dominant values in a given context or group that has the privilege of institutionalizing this profile. A competence profile is a (democratic and technical) construct that describes a set of knowledge, skills, and attitudes that are considered necessary for a person to work as a professional educator.

Instruments and Procedures

One of the most relevant scientific and pedagogical methods for determining acceptable professional development is to hold a forum to identify general wishes for the transformation of pedagogical competencies, which most often include the positioning of the profession in the socio-cultural space, the dilemma of traditionality or innovation in teaching approaches, the commonality of theoretical foundations with a practice-oriented dimension, the communication potential between participants in the educational process, and the awareness of prospects for the future. If we summarize this methodology, we will gain an understanding of the dynamism of the processes taking place in education. Therefore, the information platform for innovative transformations in the pedagogical training of specialists should ensure the formation of relevant pedagogical competencies in the future that will meet the requirements of the times.

Data Analysis

The study participants described a generalized image of the teacher of the future and the characteristics of his or her professional competencies. Given that globalization dictates the principles of dynamism and transience, pedagogical competencies must meet the challenges of time and be transformed at lightning speed.

Research Results

In Ukraine, there is a framework methodology for organizing psycho-pedagogical training programs for teachers to certify competencies for the teaching profession, which does not correlate with the professional standard and does not describe the goals of psycho-pedagogical training programs. Thus, Ukraine has approved professional standards of continuous training for the teaching profession through stages of professional, continuous development of a teaching career. Instead, European practices focus on the purpose of formalizing the teacher profile, on the forms of the elements of the profiles, and on the institutions to which they are involved.

Practices in EU countries vary greatly, with some defining the teacher profile (Germany, Denmark), others formalizing elements of the teacher profile by professional standards (England, France) or by qualification standards (Ireland, Sweden), by requirements, curriculum areas, and minimum learning outcomes for initial teacher education programs (Poland, Ireland, Spain, Austria), or by national priorities, goals, and/or recommendations (Finland).

The formalization of the profile of teachers in European countries aims to: guide training and/or in-service training programs (Finland); manage universities and educational institutions (Poland, Estonia, Austria, Spain); evaluate providers of initial and/or continuing education (England); certify or provide teacher qualifications (Ireland, Sweden); or assess (Tonga et al., 2022).

In education policy, there are two approaches to defining and using standards of teacher competence: bureaucratic and developmental, according to the formation of their educational policy in the direction of centralization or decentralization, respectively, control or trust. In the bureaucratic approach, standards are prescriptive, detailed, and used to measure, compare, and control individual behavior. In the formative approach, standards are broadly or fundamentally defined, judgments about the teacher (his/her characteristics from training, previous work) are valued and used as reflective and guiding tools for the teacher or group (professional category). The policies of Estonia, Finland, and Poland are indicative in this regard (Table 1).

In Estonia, initial teacher education, induction, professional development, and career development are regulated by two normative documents: the Framework for Teacher Education and the Professional Standards for General, Special, and Vocational Education Teachers. The professional standards include mandatory and optional competencies and performance indicators grouped into four performance levels (Chounta et al., 2022).

Poland has national standards that describe the learning modules for initial teacher education (general description, content, and objectives of the practice) and learning outcomes (knowledge, skills, and social competencies). In addition, Poland has a comprehensive teacher evaluation system (focusing on the quality of educational services) and a teacher achievement evaluation system (the basis for career advancement) (Bartosiewicz et al., 2022).

Finland has not standardized the teacher profile at the national level. Teacher training is carried out in accordance with general principles and state priorities. In this regard, in 2007 and 2017, Finland established the Advisory Council for the Professional Development of Teachers (Vuorinen, 2022).

Table 1

Field of Activity and Professional Competencies of Teachers in Different Countries

Features	Country
According to the Professional Standards for there are 6 mandatory competencies for teachers of secondary schools: - Planning learning and teaching;	Estonia - decentralization,
- Designing the learning environment; - Supporting learning and development; - Reflection and professional development; - Counseling and mentoring; - Design, creation, and research. - 2 optional competencies - Management; - Mentoring and teacher training.	control, professionalization

According to the National Standards, at the end of the initial training, a teacher - has the knowledge of psychology and pedagogy necessary to understand the processes of development, socialization, upbringing, and learning; - knows the methods of learning facilitation and has experience of their application in practice; - has the necessary pedagogical skills to perform other school-related tasks, including adapting the curriculum to meet the needs of students; - has the ability to learn and develop their own pedagogical techniques and methods, using modern methods of research, organization, and processing of information and materials; - communicates successfully, using a variety of communication techniques with people involved in learning processes and other stakeholders; - demonstrates ethics, empathy, openness, the ability to reflect, social position, and a sense of responsibility. According to the website of the Ministry of Education and Culture of Finland, what Finnish teachers believe in is: - fairness and encouragement; - individual support; - strengthening students' thinking skills; - developing students' self-confidence and tolerance	Poland - decentralization, control, professionalization Finland - decentralization, trust, professionalization
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The diversity of European strategies, reflecting the diversity of their political choices and social conditions, provides us with a wide range of resources and practices and should encourage policymakers to take a stand and initiate action on the profile of teachers' skills.

According to the results of the forum's debate on professional competencies in the characterization of the teacher of the future, the ideal teacher of the future is empathetic, adaptive, creative (pedagogically), sociable, integrity, digitally literate, ready for the inclusive moment, respectful of all, curious, committed to the profession, respectful of other professions, authentic, responsible, collaborative, loving of children, student-centered, and ethical (in order of mention). These characteristics were mentioned by between 6 and 30 people and are not statistically representative, but they give us an idea of the common features of an ideal teacher. For a complete picture, all the opinions of the participants are presented below.

Teachers need knowledge in the following areas and industries:

- 1.the discipline or area of the curriculum in which they want to teach;
- 2.disciplinary intersections and interrelationships;
- 3.teaching of the subject/discipline/curriculum area and e-learning;
- 4.psychology, psychopedagogy, and neuroscience;
- 5.at least one foreign language;
- 6.correct communication in the language of instruction (written and oral);
- 7.statistics;
- 8.neurolinguistic programming.

Teachers should have the following skills:

1. identify the learning needs of students;
2. selection and adaptation of content to the needs of students;
3. developing and implementing learning activities based on the needs of students;
4. promoting student-centered learning;
5. promoting deeper learning of the educational material by students;
6. use of local specifics in the development of learning experiences;
7. promoting the application of the acquired knowledge in the daily life lives of students;
8. use of participatory and experiential learning methods;
9. assessment based on student progress;
10. minimizing barriers/risks to learning of any kind (inclusion);
11. taking into account the strengths of each student in the organization of learning;
12. increasing students' motivation to learn;
13. providing a safe learning environment where students feel safe to ask for learning support, express their opinions, and try out new ideas;
14. curriculum development skills;
15. research skills;
16. project management skills;
17. conflict and crisis management skills;
18. collaboration/teamwork, communication, and interpersonal skills.

A teacher of the future has the following attitudes, social and emotional skills, and character traits:

1. flexible, creative, resourceful, intelligent, proactive;
2. empathetic, patient, caring, assertive;
3. virtuous;
4. responsible;
5. loves children;
6. respectful, fair, able to overcome prejudice, modest, and tolerant;
7. courageous, self-confident, and has the attitude of a free person;
8. authentic, committed to the profession, passionate;

9.inquisitive;

10. ethical, moral;

11. persistent, purposeful, persistent, persevering, tolerant of ambiguity;

12. pragmatic, reasonable;

13. positive, energetic, has charisma, a sense of humor, and is tactful;

14. competitive;

15. patriot.

Teachers should strive to:

1.Continuous learning and self-improvement;

2.Professional self-realization as a teacher.

Thus, the definition of a teacher competency profile and an integrated policy on its use will help mobilize key actors to improve teacher competencies, professionalize the sector and make the teaching career more attractive, complete the legislative framework, stimulate development (of teachers, schools, and the sector), and evaluate teacher quality.

Discussion

According to general opinion, a highly qualified teacher should have a number of qualities. First of all, they must provide high-quality, specialized training. The second condition is a predisposition to this profession. Patience, according to Ridei (2021), is an essential condition for a teacher, as working with children is very difficult. Communication competence is another important trait. What good is a solid knowledge base if the teacher is not able to express their thoughts clearly?

In formulating the idea that the work of a teacher is usually identified with the values and beliefs that underlie their actions, including fraternity, secularism, and the belief in the uniqueness of all students, we should not forget to fight against the false values in this profession - ruthless individualism, competition, and consumerism - that are increasingly evident in our society. Teachers must unite around common goals that provide meaning, unity, and coherence to their work and for which they must be prepared: to share the values of the homeland, to act as a responsible educator and to adhere to ethical principles, to cooperate within the team, to cooperate with parents and colleagues, to take into account the diversity of students, and to accompany them on their learning journey (Kravtsova et al., 2022).

According to Konstantinidou and Scherer (2022), the Polish reference structure includes fourteen general competencies for a teacher and has many similarities with the Ukrainian one. The main ones are the importance of patriotic values and the collective dimension of the profession, coherence between colleagues, all members of the educational community, parents, and partners; educational work is anything but a solitary job. The acquisition of professional skills is also carried out through internships in the first year of the master's program, which allow gradual access to classroom management: observation, supervised practice, and then actual work with students (Şen & Yildiz Durak, 2022).

We believe that such priorities firmly form the theoretical knowledge and practical skills of the teacher of the future and that they are the best way to acquire the necessary skills, step by step, and gradually enter the educational profession.

The professional competence of a teacher is realized through various pedagogical methods depending on the goals and is supported by a team, i.e., consisting of various actors involved in education: university professors, of course, but also academic partners (inspection bodies, school administrators, teachers, etc.).

When we talk about shared culture, we should ask ourselves. What does this concept mean when applied to all professionals in the field of teaching and education (professors, professors of education, chief educational consultants, education workers, and actors in the educational community)? What do they have in common?

In this perspective, Estonian scholars emphasize the importance of having skills common to all. According to Dewi and Singh (2022), this means setting a high standard for Estonian schools and guaranteeing the same quality of service across the country. Such standardization should also help everyone build a professional identity (Zhurat et al., 2022).

In France, on the other hand, the competencies that all teachers and educators should gradually acquire are organized into four main areas: the values of the Republic and the ethical and institutional framework in which they are deployed; cross-curricular topics and basic social subjects; professional gestures related to learning situations; in-depth knowledge; and professionalism (Temam et al., 2022).

The tragic events of February 24, 2022, in Ukraine, as well as the national and global context, demonstrate the great need for our country to be able to rely on teachers and educators who are well prepared according to these points and who share a common vision of the school's mission. Pedagogy and democracy have much in common in the face of war and enemy fascism.

By outlining the general and specific skills of the teacher of the future post-war Ukraine, the reference base paints a portrait of a professional with precise disciplinary knowledge as well as know-how for organizing learning, media training, teamwork, personal practice, dialogue with parents, and technological literacy.

At the same time, it should be noted that the context of the profession will evolve, and that the teacher of tomorrow will have to develop accordingly. In order to adapt to the changing context of Ukrainian society, a teacher will need ingenuity and deep humanism. These concepts are present in the notion of "skills," a reference to which indicates that each of them involves "critical thinking, creativity, initiative, problem-solving, risk assessment, decision-making, and constructive management of feelings" from the person who implements them. This is the reflective, autonomous, and creative professional who will be best prepared to face the post-traumatic stress of war. The Ukrainian educator of the future will also have to integrate the elements of digital culture necessary to carry out his or her profession and, finally, fully participate in the diversity and fluidity of the modern world, opening up more and more to the international and intercultural.

According to the answers of the forum participants, a highly qualified teacher is mostly characterized as a professional teacher who has his or her own image projected and corresponds to a professional identity. In this sense, Polish scholars distinguish two types of projection and vision of a teacher's professional identity:

1. Professional-managerial type, characterized by the design of professional identity based on pedagogical and scientific competencies, which gives priority to the process of formation and professional development.

2. The mythical and metaphorical dominant focuses on the elements of “data” with which a person is supposedly born, but also on the emphasis of some factors not related to career learning and development: love for children, experience gained during work, etc.

When asked the question “What is a successful teacher?”, the forum participants' answers were as follows: the presence of certain affective characteristics, qualities, or what is called a vocation.

According to Vuorinen (2022), a successful teacher should have nerves of steel and calmness without edges. According to the author, in terms of the characteristics of a true teacher, related research helps to build a portrait of the teaching staff. Pedagogical excellence is generally named and combined into several qualities: fairness, intelligence, sociability, and tolerance. A successful teacher is a teacher who has enough years of experience, who has all the pedagogical degrees, and who knows his or her job.

In the context of professional training, it can be noted that most teachers believe that they are highly motivated to participate in training courses. Moreover, the vast majority believe that the training opportunities currently offered are adequate or even very good. These responses indicate that teachers believe that the education system allocates enough space for them. When asked what the ideal teacher of the future is, one can even intuitively answer that a teacher must first and foremost be a good teacher.

The Finnish education system places the teacher in a system of relationships that extend beyond the school premises, including those with the parents of students and, in general, members of the social group in which he or she lives and works, and he or she is obliged to respond to their needs. The teaching profession has an extremely strong human dimension, which involves not only knowledge and skills but also attitudes and values - in short, a professional conscience (Aydin, 2022).

European pedagogy adheres to democratic principles. For an educational act to be effective and enjoyable at the same time, it is necessary to overcome the inequality between teacher and student. A student wants to find support in his teacher in a formal situation, not primarily a specialist with specific competence in a particular academic field. He needs the teacher's cooperation, although the teacher-student relationship remains a controversial entity as it carries primarily conflict, which contributes to people's intergenerational confrontations. The requirement of pedagogical partnerships can only be built based on compliance with a fundamental condition, namely, knowledge of the student's personality (Hautakangas et al., 2022).

So, we come to understand a set of ideas. First, about the uniqueness of each student and teacher, each teacher is a specific case in matters of education. Therefore, the individuality of both the teacher and the students should be respected.

Conclusions and Implications

The results of this study showed that the main argument for the school of the future is the need for quality education and highly qualified teachers. The analysis of professional competencies in the characterization of the teacher of the future pointed to three most important qualities: the teacher of the future has the thorough specialized training, is a professional in his field, and has a vocation to the teaching profession. Other qualities such as love for children, intelligence, tolerance, etc. are added to these qualities. Professional competencies in the vision of the forum participants emphasized

communication skills and attitudes, as well as the teacher's attitude towards children. It can be said that the ideal model that teachers strive for meets a large number of attributes. The most important element that should not be neglected is the way in which teachers design, build, and shape their own professional identity. In this context, the professional identity of a teacher is heavily imbued with myths of sacrifice and vocation.

However, the question of how to build a professional identity correlates with the approaches of modern teacher education based on professionalism, learning, and continuous self-improvement.

Therefore, the ability of teachers to self-reflect and conceptualize elements related to their work is a very important attribute for forming positive characteristics of the future teacher.

Suggestions for Future Research

It is necessary to briefly indicate the main prospects for future researches. It seems interesting analysing the given topic from several perspectives: setting priorities in students teaching and upbringing; participation in continuous professional development and improvement of teaching and learning strategies; the cooperation and interaction with colleagues in the interests of teaching and upbringing of students. It would be advisable to investigate the elements to be evaluated and self-evaluated in terms of a teacher's professional activity relating to the skills of searching, anticipating, planning and forecasting, and decision-making. Another perspective is the study of lifelong learning portfolios as a tool focused on personal reflection and self-assessment of learning and knowledge acquisition. Portfolios being valuable learning process also generate certain disadvantages. The development and maintenance of a portfolio involves a personal, subjective assessment of skills and competences that cannot meet the validation criteria of a formal institution. Considering a portfolio in educational practice as a tool focused on the needs of the subject of assessment, as well as a complementary and integrative assessment method that considers a triple perspective: cognitive, behavioural and worldview is very promising. A lifelong learning portfolio serves both for collecting/certifying learning experiences and for the self-assessment and evaluation (a tool for personal development, education and career planning, as well as decision-making support).

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Evaluating Entrepreneurial Skills Needed by Business Education Students for Self-employment in Colleges of Education, Kano State

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Abstract. This study evaluates the entrepreneurial skills needed by business education students for self-employment in colleges of education in Kano state. Two research questions guided the study. The population for the study was 913 final-year, business education students across the three selected colleges of education in Kano State. The sample size for the study was 256 final-year students in the selected schools. The descriptive survey research design was adopted for the study. A 19 items structured four-point rating scale questionnaire, duly validated by experts in the field of business education, measurement and evaluation, and English language was used for the data collection. The instrument was subjected to a pilot test and a reliability coefficient of 0.95 which was taken to reliably determined using the Cronbach Alpha (2020) co-efficient. The data collected for the study were analyzed using percentage scores for the personal data of the respondents and mean scores with a benchmark of 2.50 and above accepting the questionnaire items and the grand mean. The study revealed that

Managerial skills, Word processing skills, and Practical entrepreneurial skills among others were identified as entrepreneurial skills needed by business education students for self-employment. Poor funding, lack of adequate infrastructure, and corruption among others were also identified as the constraints hindering the effective acquisition of entrepreneurial skills by business education students. Based on the findings of the study, it was concluded that the acquisition of entrepreneurial skills is necessary for making graduates of business education to be productive and self-reliant after graduation. As a way forward, it was recommended among others Provide mentorship and coaching: Students need guidance and support as they develop their entrepreneurial skills. Governments and schools can provide mentorship and coaching programs that connect students with successful entrepreneurs and business leaders. These programs can provide students with advice, feedback, and networking opportunities that can help them succeed.

Keywords: Business education, entrepreneurial skill, and self-employment.

Introduction

The goal of the business education curriculum is to equip students with relevant skills and abilities such as accounting, technical, managerial, marketing, and entrepreneurial skills and competencies that will prepare them for work in either an employed or self-employed capacity. In line with this, Iwu (2016) claims that business education provides students with the necessary skills and competencies for self-reliance and employment. This implies that it is a discipline that gives students the specialized knowledge and skills they need to enter the workforce and find employment that they are happy with or stand on their own. Based on this assertion, it is obvious that business education helps students to become self-employed, which lessens the need for the government to create jobs for new graduates since the graduates of business education can employ themselves and also create jobs for others.

To Aliyu in Simiku and Oru (2016), business education is a branch of study whose objective is to assist students to gain skills, competencies, attitudes, and traits necessary for efficiency in the economic system. This shows that business education includes the knowledge, attitudes, abilities, and competencies needed to manage one's income and the economic system successfully and efficiently to ensure an ongoing process of income generation. In line with this, The Federal Republic of Nigeria (2013) in her National Policy of Education (NPE) also sees the major objective of business education as the acquisition of appropriate skills; capacities, and competencies that will help individuals to contribute to national development. This shows that the main aim of business education is to during study impart to the students all the necessary skills that will enable them to be productive and become employers of labor after graduation. To achieve the goal of self-reliance after graduation, students of business education require a broad range of entrepreneurial skills.

Skill is thought of as a quality of performance that does not depend solely upon a person's fundamental innate capabilities but must be developed through training, practice, and experience. Martin (2015) states that the 2014 annual report of the Organisation for Economic Co-operation and Development (OECD) identified three types of skills (entrepreneurial skills) required by an entrepreneur which include; technical skills, business management skills, and personal entrepreneurial skills. Saidu et al. (2017) are also of the opinion that the entrepreneurial skills that are required for sustainable economic development are technical, business management skills and personal entrepreneurial skills. Technical skills include written and oral communication, technical implementation skills, and organizing skills (Henry et al., 2005). In the opinion of Alison (2019),

technical skills are the abilities, capabilities, and expertise required in undertaking specific responsibilities. They are practical and are linked to information technology, mathematics, and scientific tasks. Technical skills comprise technical writing; project management; data analysis; social media experience; ability to proffer concrete decisions; technical proficiency; concentration and communication. In addition to these, Martin (2015) states that technical skills include environment monitoring, problem-solving, and interpersonal skills.

Business management skills are the competencies and capabilities that will lead to the effective performance of management tasks (Okoli & Ezenwafor, 2015). Entrepreneurial skills, on the other hand, are the pieces of training given to people to acquire the skills, ideas, managerial abilities, and capabilities for self-employment rather than paid employment. Entrepreneurial skills are, therefore, the basic skills necessary to enable an individual to start developing, finance, and succeed in their business (Agoba, 2011). Entrepreneurial skills are also seen as the business abilities that one learns in school or via training that allow them to work well as an entrepreneur and enable them to transform and improve business activities within a given society. By acquiring entrepreneurial skills a person would be guided towards the accomplishment of sustainable economic development. Furthermore, Abanyam (2014), Adebisi (2015), and Eze et al. (2016) point out that innovative abilities, high level of self-esteem, creative ability, good problem-solving ability, tolerance for ambiguity, ability to integrate the 5ms (men, machine, materials, money, and management), and goal-orientedness are among the entrepreneurial skills. The authors also add additional entrepreneurial skills, such as the capacity for sound judgment, technical proficiency, problem-solving aptitude, communication, motivation, organizational aptitude, management/administration aptitude, financial management aptitude, marketing aptitude, and capacity for minimizing business failure to the list of entrepreneurial skill

Working for yourself rather than being employed is self-employment. Self-employment is the process through which an individual develops their business enterprise without relying on another person for a living.

Considering the foregoing as well as the findings of the study conducted by Daluba and Odiba (2013) which found out that Nigerian graduates can only work for themselves if they develop crucial skills such as technical know-how, managerial know-how, marketing know-how, and competencies leading to abilities for transferring their education into self-employment, wealth generation, job creation, and fulfillment through entrepreneurship programs, this study aims to evaluate the entrepreneurial skills needed for self-employment by business education students in Colleges of Education in Kano State.

Research Problem

In the past, when students graduate from colleges of education, it used to be easy for them to get employed because jobs were available in both the public and private sectors contrary to what is happening currently. The interactions of the researchers with some unemployed business education graduates revealed that the majority of them were unable to find jobs either in the public or private sector and they cannot stand on their own because they lacked the necessary entrepreneurial skills that would have allowed them to be independent. This study, therefore, intends to solve this problem by evaluating the entrepreneurial skills needed by business education graduates for self-employment.

Research Aim and Research Questions

The purpose of this study is to evaluate the entrepreneurial skill needed for self-employment by business education students in Colleges of Education in Kano State. Specifically, the study sought to:

1. Evaluate the entrepreneurial skills needed by Business Education students for self-employment in Colleges of Education in Kano State.

2. Identify the constraints that hinder the effective acquisition of entrepreneurial skills needed by Business Education students for self-employment in Colleges of Education in Kano State.

Based on the purpose of the study, the following research questions were developed to guide the study:

1. What are the entrepreneurial skills needed by Business Education students for self-employment in the Colleges of Education in Kano State.?

2. What are the constraints that hinder the effective acquisition of entrepreneurial skills needed by Business Education students in Colleges of Education in Kano State?

Theoretical framework

The study was based on two theoretical underpinnings. These are the Human Capital Development theory of entrepreneurship which was coined by Shultz (1961) and Becker (1964) and the Theoretical

Education Empowerment Model which was developed by Freire in 1970 (Freire, 1970). The Human Capital Development theory of entrepreneurship is based on two major premises namely; education and experience. Therefore, the knowledge acquired from education and experience is a heterogeneous resource

that is distributed across individuals and it is a key determinant of the underlying differences in opportunity identification and utilization. Theoretical Education Empowerment Model, on the other hand, points out that empowerment and liberating education are processes involving listening, dialogue, critical reflection, and reflective action. These theories are taken to be appropriate for this study because when the potentials of business education students are harnessed through education and the spirit of self-reliance is instilled in them through listening, dialogue, critical reflection, and reflective action, they would strive against all odds to acquire the right entrepreneurial skills and become self-employed.

Methodology

General Background

A descriptive survey research design was used for the study. The study was conducted in two Federal Colleges of Education and one State College of Education in Kano State offering a business education programme. These colleges are; the Federal College of Education (Technical) Bichi, Kano State, Federal College of Education, Kano and Saadatu Rimi College of Education, Kumbotso, Kano State. The choice of the State for this study was necessitated by the adequate number of business education students who made up the respondents for the study and also the growing rate of unemployed among business education graduates who will benefit exceedingly from the findings of the study. The population of the study comprises 913 final-year business education students in the three Colleges of Education in Kano State. The choice of this category of respondents was because of their vast potential

for entrepreneurship. A sample size of 256 business education students representing 28 percent of the population under study was selected based on the view of Gay in Olayiwola (2007) which states that a sample size of 10% is adequate in descriptive research. The samples were thereafter proportionately taken from the three colleges of education. The instrument used for the data collection was a 19 items structured questionnaire titled "Assessing Entrepreneurial Skills Needs Questionnaire" (AESNQ), drafted using a four (4), point rating scale of Strongly Agree (SA)= 4 points, agree (A)= 3 points, disagree (D)= 2 points and strongly disagree (SD)= 1 point. The questionnaire items were subjected to face and content validation by two experts in the Department of Business Education, Faculty of Education, Ahmadu Bello University; Zaria. In addition, one in each of the Measurement and Evaluation and English Language experts from Federal College of Education (Technical) Bichi and Bayero University Kano respectively also validated the instrument. The instrument was subjected to a pilot study which was conducted at the Federal College of Education Katsina, Katsina State using 30 respondents. The pilot study gave rise to a reliability coefficient of 0.95 determined using the Cronbach Alpha () coefficient. This implies an excellent internal consistency among the responses and thus, making the instrument suitable for use. The data collected concerning the research questions were analyzed using mean scores with the benchmark of 2.50 and above considered as being accepted while mean scores from 2.49 downward were considered as rejected.

Research Results

The results of the study were presented in the tables below:

Table 1

Distribution of Respondents Based on their Departments

Department	Frequency	Percent
Accounting Education	142	55.5%
Office Technology and Management Education	88	34.4%
Marketing Education	18	7.0%
Entrepreneurship Education	8	3.1%
Total	256	100.0%

Source: field survey data 2023.

Table 1 shows the distribution of the respondents based on their departments. Based on the findings, it was reported that 55.5% of the total respondent were from Accounting Education Department, 34.4% from Office Technology and Management Education Department, 7.0% from Marketing Education Department, and the least (3.1%) were from Entrepreneurship Education Department. This indicates that the majority of the respondents were from Accounting Education Department.

Table 2

Shows Distribution of the Respondents Based on Gender

Gender	Frequency	Percent
Male	146	57.0%
Female	110	43.0%

Total	256	100.0%
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Source: field survey data 2023.

Table 2 shows the distribution of the respondent. It can be seen from the table that most of the respondents were male taking a proportion of 57.0% while the females take 43.0%. This indicates that the majority of the respondents were male.

Table 3

Age Distribution of the Respondents

Age Group	Frequency	Percent
15-20	70	27.3%
21-25	134	52.3%
26-30	35	13.7%
31-35	17	6.6%
Total	256	100.0%

Source: field survey data 2023.

Table 3 gives the age distribution of the respondents. From the results, as shown in the table, it was reported that 27.3% of the respondents were between the age group of 15-20 years, 52.3% were between the age bracket of 21-25 and they are the highest, 13.7% are between the age-26-30 and 6.6% (the least) were between the age group of 31-35 years. This indicates that the majority of the respondents were between the ages of 21 to 25.

Research Question 1:

What are the Entrepreneurial skills needed by Business Education Students for Self-employment in the Colleges of Education in Kano State?

Table 4

Mean ratings of the Respondents on Entrepreneurial skills needed by Business Education Students in Colleges of Education for Self-employment

S/N	Items	SA	A	D	SD	Mean	Decision
1	Managerial skills	143	103	6	4	3.50	Accepted
2	Word processing skills	91	150	11	4	3.28	Accepted
3	Practical entrepreneurial and craftsmanship skills	119	101	29	7	3.29	Accepted
4	Information and communication technology skills	107	117	21	11	3.25	Accepted
5	Skills for provision of financial services	114	110	24	8	3.28	Accepted
6	Teaching skills	98	130	26	2	3.26	Accepted
7	Skills for operating office machines	96	114	31	15	3.13	Accepted
8	Time management skills	102	123	19	12	3.23	Accepted
9	Technical skills	105	111	28	12	3.20	Accepted

Grand mean	3.26	Accepted
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Source: field survey data 2023.

Table 4 gives the mean ratings of the respondents regarding their opinion on entrepreneurial skills needed by business education students for self-employment. A four-rating Likert scale was used and based on the results, it could be seen that all the items fall within the range of the benchmark of 2.50 and above which were interpreted as being accepted. The grand mean of 3.26 also falls within the accepted region. These indicate that the respondents agreed that all the items are entrepreneurial skills needed by business education students in colleges of education for self-employment.

Research Question 2:

What are the constraints that hinder the effective acquisition of entrepreneurial skills needed by Business Education students for self-employment in the Colleges of Education in Kano State?

Table 5

Mean ratings of the Respondents on Constraints that hinder the effective Acquisition of entrepreneurial skills needed by Business Education students for Self-employment in Colleges of Education in Kano State

S/N	Items	SA	A	D	SD	Mean	Decision
1	Poor funding	102	95	42	17	3.10	Accepted
2	Lack of adequate infrastructure	71	119	46	20	2.93	Accepted
3	Corruption	77	102	47	30	2.88	Accepted
4	Recruitment of unqualified teachers	82	103	45	26	2.94	Accepted
5	Insufficiency of learning materials	102	95	41	18	3.09	Accepted
6	Overemphasis on paper qualification	112	82	48	14	3.14	Accepted
7	Poor implementation of the curriculum	80	110	47	19	2.98	Accepted
8	Poor supervision	82	108	40	26	2.96	Accepted
9	Industrial actions (strikes)	87	103	51	15	3.02	Accepted
10	Poor attitude of parents toward skills acquisition programmes	80	109	45	22	2.96	Accepted
Grand Mean						3.00	Accepted

Source: field survey data 2023.

Table 5 shows the responses of the respondents regarding the Constraints that hinder the effective acquisition of entrepreneurial skills needed by Business Education students for self-employment. Based on the results, it was observed that all the items fall within the range of the benchmark mean of 2.50 which is interpreted as being accepted. The grand mean of 3.00 which also falls within the range is also interpreted to be accepted. These indicate that the respondents agreed that all the items are constraints that hinder the effective acquisition of entrepreneurial skills by Business Education students for self-employment in colleges of education for self-employment.

Discussion

The Findings of the study presented in Table 4 indicated that all the identified entrepreneurial skill needs are needed by business education students for self-employment. The reason is that the skills will help students to achieve self-reliance and self-employment after graduation. It is, therefore, the view of the researchers that if business education students can be skillful in the identified entrepreneurial skills they will be self-reliant and also, in the long run, become employers of labor. The findings corroborate the views of Igbo (2009) and Ezeh (2012) which revealed that the acquisition of entrepreneurial skills prepares and develops students' potential for the attainment of self-reliance, thereby contributing to sustainable development.

Managerial skills are crucial for students of Business Education who intend to become self-employed. Effective management is key to the success of any business, and students who understand the principles of management are better equipped to run their own businesses. Managerial skills include the ability to plan, organize, control and direct resources towards the achievement of organizational goals. A good manager must also have leadership skills, which involves the ability to motivate and inspire employees to work towards a common goal. Additionally, managerial skills include the ability to make sound decisions, solve problems, communicate effectively, negotiate, and manage time efficiently. All of these skills are essential for the success of any self-employed individual.

In today's digital age, word processing skills are essential for students of Business Education who intend to become self-employed. Effective communication is key to the success of any business, and students who understand how to use word processing software can create professional-looking documents, reports, and presentations. Additionally, word processing skills enable students to communicate effectively through email and other digital platforms. In today's business world, many transactions take place online, and the ability to write and communicate clearly and professionally is essential for the success of any self-employed individual.

Practical entrepreneurial and craftsmanship skills are essential for students of Business Education who intend to become self-employed. These skills include the ability to identify a market niche, develop a product or service that meets the needs of the target market, and create a brand that stands out in a crowded marketplace. Additionally, entrepreneurship involves the ability to manage finances, market products and services, and build relationships with customers. Craftsmanship skills, on the other hand, involve the ability to create high-quality products or services that meet the needs of customers. Both practical entrepreneurial and craftsmanship skills are essential for the success of any self-employed individual, as they enable the individual to create and deliver products and services that meet the needs of the market.

In summary, managerial skills, word processing skills, and practical entrepreneurial and craftsmanship skills are important and highly needed by students of Business Education for self-employment. These skills enhance students to effectively manage resources, communicate effectively, create high-quality products and services, and build successful businesses that meet the needs of the market.

The findings as presented in Table 5 revealed that constraints such as poor funding, lack of adequate infrastructure, corruption, recruitment of unqualified teachers, and insufficiency of learning materials, among others as the hindrances to the effective acquisition of entrepreneurial skills by business education students for self-employment. These are in line with the opinion of Kayode (2010) which states that the majority of teachers teaching entrepreneurship are yet to acquire some practical

entrepreneurial skills needed to impart to students as well as develop and adopt new teaching methods that will enhance skill delivery.

Poor funding is one of the major constraints that hinders the effective acquisition of entrepreneurial skills by students of business education in colleges of education Kano state. Adequate funding is essential for providing necessary resources such as textbooks, reference materials, and other learning resources. Without adequate funding, colleges of education may not be able to provide the necessary resources that are essential for effective learning. This can hinder the acquisition of entrepreneurial skills by students, as they may not have access to the necessary resources and support needed to develop their skills.

Another factor that can hinder the effective acquisition of entrepreneurial skills is a lack of adequate infrastructure. Entrepreneurship education requires practical learning experiences, which can only be achieved through the provision of adequate infrastructure such as computer labs, entrepreneurship workshops, and other facilities. Without adequate infrastructure, students may not have access to the necessary tools and equipment needed to develop their skills. This can limit their ability to acquire entrepreneurial skills, as they may not have the opportunity to apply theoretical concepts to real-world situations.

Corruption is also a significant constraint that can hinder the effective acquisition of entrepreneurial skills by students of business education in colleges of education. Diverting fund meant to develop entrepreneurial centers for a personal use, buying of low branded equipment's for teaching and learning. Corruption can affect the quality of education by undermining the credibility of the institution and its programs. When students perceive that their teachers or administrators are corrupt, they may lose faith in the institution and its programs, which can hinder their motivation to learn and develop their entrepreneurial skills.

In conclusion, poor funding, lack of adequate infrastructure, and corruption among others are major constraints that can hinder the effective acquisition of entrepreneurial skills by students of business education in colleges of education in Kano state. To overcome these challenges, it is essential to provide adequate funding to support the development of entrepreneurship education, invest in infrastructure, and promote transparency and accountability to reduce corruption in the education system.

Conclusions and Implications

The findings of the study bring to the fore, the skills that are needed for self-employment by business education students in colleges of education as well as the hindrances to effective acquisition of the skills.

Based on the research and literature available, it can be concluded that business education students need to develop a range of entrepreneurial skills, including Managerial skills, Word processing skills, Practical entrepreneurial and craftsmanship skills, Information and communication technology skills, Skills for provision of financial services , Skills for operating office machines, Time management skills, Technical skills. These skills are essential for identifying and capitalizing on new business opportunities, developing effective business strategies, and managing resources efficiently and to enable them fit into the world of work effectively.

To improve their entrepreneurial skills, business education students should take advantage of opportunities to gain practical experience through internships, networking events, and entrepreneurship programs. They should also seek out mentors and role models who can provide guidance and support as they navigate the challenges of starting a new business.

The implications of these findings include the fact that the acquisition of entrepreneurial skills paramount for making business education students self-employed after graduation, efforts should be made toward ensuring that skills are effectively acquired thereby making the graduates of business education to be productive and extension bringing about sustainable development in Kano State and Nigeria at large.

Based on the findings of the study, the following recommendations are made:

1. Conferences, seminars, and workshops should be held regularly to sharpen the knowledge of lecturers teaching business education.
2. An adequate teaching period should be allocated for teaching and learning entrepreneurship education for in-depth coverage of the scheme and goal attainment.
3. Provide access to funding and resources: Starting a business requires capital and resources. Governments and schools can provide access to funding and resources through grants, interest-free loans, and other financial support programs. They can also provide access to business incubators, accelerators, and other resources that can help students start and grow their businesses.
4. Foster a culture of innovation and creativity: Governments and schools can foster a culture of innovation and creativity by creating an environment that encourages experimentation and risk-taking. This can be achieved by promoting entrepreneurship as a viable career option, celebrating entrepreneurial success stories, and providing funding opportunities for innovative projects.
5. Provide mentorship and coaching: Students need guidance and support as they develop their entrepreneurial skills. Governments and schools can provide mentorship and coaching programs that connect students with successful entrepreneurs and business leaders. These programs can provide students with advice, feedback, and networking opportunities that can help them succeed.
6. Encourage experiential learning: Business education students need practical experience to develop their entrepreneurial skills. Governments and schools can facilitate this by providing opportunities for students to participate in start-up competitions, business plan competitions, and other entrepreneurial events. Such opportunities allow students to practice their skills and receive valuable feedback from experienced entrepreneurs.
7. Stakeholders involve in education sector should be as a matter of urgency, provide adequate funding to support the development of entrepreneurship education, invest in infrastructure, and promote transparency and accountability to reduce corruption in the education system.
8. The curriculum should be reviewed in line with entrepreneurship education, this should serve as a strong educational policy by government at all levels and the evaluation should be given a top priority.

Suggestions for Future Research

In terms of the topic's actuality the following suggestions for future research are the next:

1. To evaluate the impact of entrepreneurship education: an assessment can be conducted in order to determine the impact of entrepreneurship education on the entrepreneurial skills and intentions of business education students in Kano State.
2. To explore technology role: the role of technology in entrepreneurship can be explored, particularly in terms of technology use for businesses creation and scaling.
3. To identify the best practices: the best practices in entrepreneurship education can be investigated and identified, particularly those that have been successful in similar contexts.
4. To conduct a needs assessment: a needs assessment can be conducted in order to determine the specific entrepreneurial skills that business education students in Kano State need to acquire to become successful entrepreneurs.
5. To analyse the current business education curriculum: an analysis of the current business education curriculum can be conducted in terms of the adequate students' preparation for the self-employment.
6. To explore the role of government policies: the role of government policies in supporting entrepreneurship in Kano State can be explored, particularly in terms of how these policies can facilitate the development of a conducive environment for entrepreneurship.
7. To conduct case studies: case studies can be conducted on successful entrepreneurs in Kano State in order to identify the key factors that contributed to their success.

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Some Aspects of Adapting the Educational Process of Ukrainian Higher Education to the Global Challenges of the XXI Century: A Forecast of the Future

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Abstract: Globalization processes of the XXI century have a significant impact on the development of all spheres of society, including the formation and transformation of the higher education system. The

purpose of the article is to analyze the aspects of adaptation of the educational process of higher education to the global challenges of the XXI century through the prism of future transformations. The paper uses general scientific (analysis, synthesis, deduction and induction) and specialized (forecasting, abstraction) methods of scientific work. The principles of objectivity, scientificity, and systematicity were fundamental. Given the theoretical nature of the study, 41 items of the latest relevant literature of 2015-2023 were processed, which highlight the main aspects of the development of modern educational processes and the prospects for these vectors in the future. The results trace the aspects of adaptation of higher education to the requirements of the modern labor market. The need for structural changes in the university education of the future is emphasized. Some changes in the field of humanities education are also traced, which will change towards multidisciplinary and integration with digital technologies. The conclusions state that rapid digital and technological transformations complicate the training of specialists, but educational institutions in Europe and the United States are actively working to respond to these challenges, including the introduction of lifelong learning and an emphasis on digital technologies, programming, and robotics. It is also argued that humanities education is also undergoing changes, including additional emphasis on a comprehensive understanding of cultural processes and global challenges, the development of critical thinking, digital and technological skills, intercultural competence, ethical and moral values, creativity and innovation, and the ability to communicate effectively and work in a group. The development of soft skills against this background is one of the most important processes.

Keywords: globalization, higher education, transformations, prospects, humanitarian education, technical education.

Introduction

The higher education system has changed significantly in recent years. In particular, a number of global challenges have been noted that have significantly affected the educational process in both global and Ukrainian higher education institutions. These challenges include the introduction of distance learning due to the epidemiological situation, the actualization of military conflicts within Europe (Russian invasion of Ukraine), as well as transformations in the sociocultural and economic dimensions related to globalization and technologization. The question now arises of the timely adaptation of the educational strategy to the realities of modern times. This process will help to ensure that higher education institutions and create an appropriate environment for the effective training of future professionals who will be able to realize the appropriate level of professional competence in the new context.

The analysis of the current reforms of the educational system is an important step in predicting the methods of integrating the necessary components into the educational paradigm of higher education institutions. reality has demonstrated the readiness of the higher education system to introduce radical changes. In particular, distance education has proven to be quite viable against the backdrop of the global COVID-19 pandemic (Nichols, 2020b). Even before 2019, this innovative method of training future students had demonstrated its effectiveness, so the spread of the pandemic only showed its potential (Sewart, 2020). At the same time, other social transformations related to the use of digital technologies and changes in public opinion associated with the penetration of new technologies into all spheres of public life were taking place.

In accordance with the current requirements of modern education, the trend of digitalization (including distance learning) is considered to be the leading one. Researcher Demiray (2017) asked the controversial question “Is the digital era a 'tsunami' for distance education?”. In his opinion, so far, distance education using digital technologies has been used at every level of education and learning environment, which undoubtedly forms a limitless platform of opportunities, better than face-to-face learning at any level of the learning environment (Demiray, 2017, p. 179). The spread of the Covid-19 pandemic has contributed to the emergence of many studies on the importance and role of distance education in the face of global challenges (Cavalcanti et al., 2021; Dewi & Wajdi, 2021; Dhawan, 2020; Garivaldis, 2020; Hamzah et al., 2021; Lee, 2020). In particular, Dhawan (2020) drew attention to the following problematic aspect: “Is distance education really a 'panacea' against the backdrop of the spread of global problems of humanity?”. The researcher believes that “Online learning is becoming a winner in the midst of chaos” (Dhawan, 2020, p. 6-7). Therefore, the problem of improving the quality of online learning is relevant against the background of modern challenges. According to Gourlay (2020), resistance to digital change will not help any educational institution around the world, as they will be evaluated by the speed of adaptation to global challenges. At the same time, according to Abd-Rabo and Hashaikeh (2021), the digital transformation revolution is inevitable and will affect all social spheres of human activity. At the same time, Baber (2020) raises an important issue of student satisfaction with digital learning tools, according to its results, students are generally interested in distance learning. Nichols (2020b) provides a detailed description of the digital distance education (DDE) model and shows the opportunities and threats of its use in practice.

At the same time, taking into account the trends in the development of the educational environment, the adaptive process of higher education to the global challenges of the twenty-first century includes the formation of digital and information literacy, social skills, and multicultural competence in both students and teachers. For this reason, the work of Bogossian (2022) is important, describing the peculiarities of the formation of the information society through the prism of forecasting. At the same time, Cherng and Davis (2019) studied the key aspects of multicultural competence formation and identified its role in the education system of the future. Eggens (2021) determined that digital competence and social skills will be especially in demand among employers in the future. Nevertheless, clarifying the impact of the modern work environment on higher education remains an urgent problem for further development. In addition, there are not many synthetic works that comprehensively cover the issue of adapting the educational process of higher education to future global challenges.

Research Problem

The main attention is paid to the problems of possible development of the higher education sector in the light of overcoming the challenges of today. First of all, the impact of globalization, especially relevant for the twenty-first century, is discussed. Taking into account the likely vectors of development of the university system, the specifics of training, organization of education, and teaching methods are important for the development of a vision of the future. This also includes the possibility of improving the Ukrainian higher education system, which has additionally faced the challenge of Russian military aggression, which is devastating in economic and human terms. Taking into account such additional challenges has a much broader context in the international dimension than it seems at first glance. Therefore, taking into account such challenges is also relevant and important for identifying trends in the development of higher education in the future.

Research Focus

The study is aimed at identifying and analyzing the manifestations of the interaction between higher education and the main trends in the development of the labor market, digitalization, philosophical perception of man and education in the future. The educational process is directly related to the development of socio-political dynamics, as it is the primary stage of support for all sectors of state institutions. For this reason, a detailed consideration of the very challenges that society will face in the twenty-first century will also be an important basis for introducing adequate transformations in the educational process. Only when all these factors are taken into account will it be possible to draw certain conclusions about ensuring the required level of quality of educational interaction within the functioning of higher education institutions. In addition, the problem of creating a holistic, systematic method of harmonizing higher education in Ukraine that will generally meet modern challenges remains relevant.

Research Aim and Research Questions

The purpose of the study is to analyze the aspects of adaptation of the educational process of higher education to the global challenges of the twenty-first century through the prism of future transformations. In the process of realizing this goal, the main attention will also be paid to the transformation of the labor market (as an important factor influencing education), changes in the paradigms of teaching and application of the humanities, and forecasts regarding the main vectors of development of education in higher education institutions in the future.

Research Methodology

General Background

This article is based on a theoretical study that was conducted in several stages. The first stage involved a theoretical analysis of the problem, which consisted of collecting and studying the relevant scientific literature. The theoretical part of the study is based on the use of general scientific methods, such as analysis and synthesis. Using the method of deduction, the study moved from general scientific provisions to the formation of its own conclusions and hypotheses about the problem of higher education of the future in the context of digitalization of the educational and scientific sphere. In addition, the study used the deductive method to consider the phenomenon of professional training of students as a constantly changing and active development.

Particular attention is paid to the method of abstraction, which is used to identify the features of existing higher education systems in the modern world. The forecasting allows us to draw cautious conclusions about the future of the technical and humanities sciences and the corresponding transformations of higher education.

Research Results

Globalization and the Challenges of the Work Environment: Impact on Higher Education

Researchers dealing with pedagogical issues often proceed from an applied orientation and intentionality to make further predictions about the development of education (Cherng & Davis, 2019; Lee, 2020). They set themselves specific tasks to solve problems faced by educators. These tasks are considered in the context of social transformations that have a major impact on the educational process. Globalization challenges are the main factor that, according to many, determines socio-cultural

transformations (Demiray, 2017). Therefore, it is advisable to use research works that highlight the dynamics of the modern labor market, taking into account social needs. For example, in the context of the US professional field, the need to ensure universal skills for employees in a globalized work environment is substantiated. The experience of the American workplace can be useful in the process of developing vocational education, given the pronounced Americanization that is a leading feature of modern globalization (Murphy et al., 2022).

It is also important to take into account the realities of the labor market in the EU member states. The purpose of implementing educational innovations on the way of integration into the European space of higher education systems is to:

- providing conditions for personal development and creative self-realization of each student of higher education;
- development of equal opportunities for quality education and further evolution learning system;
- improving the quality of education, training, qualification, obtaining the necessary competencies, and awareness of the responsibility of specialists for the work they do (Pinheiro & Santos, 2022);
- improving the scientific and methodological support of higher education institutions;
- Improving the professionalism and social status of teaching and research staff;
- improving the quality and competitiveness of future specialists, meeting the needs of the educational services market and the labor market, improving the employment situation of graduates of higher education institutions, and providing them with their first job (Pinheiro, & Santos, 2022).

Globalization processes, in particular the integration of economic and cultural spaces, determine the importance of international educational initiatives. The need for further integration of professional communities from different countries makes it expedient to expand mobility programs in the process of educational and professional activities (Stephanidis & Antona, 2022). A separate factor that will significantly affect the institution of higher education in the future is the trend of robotization (Hamzah et al., 2021). Accordingly, the work environment is undergoing significant changes, as production specialties are no longer needed. Moreover, as the experience gained during the crisis period of quarantine restrictions shows, the leading way to overcome the crisis is currently the spread of information and communication technologies (ICT) in new areas of life.

In the near future, education will be focused on digitalization and the spread of ICT in various forms, and robotization in the manufacturing sector will only increase (Wojciech et al., 2021). In particular, international online trade has become more active, which has led to an increase in demand for specialists in the economic and logistics sector. Currently, a form of higher education that will provide the possibility of professional realization in several specialties can be considered relevant for the training of specialists, given the growing need to change jobs under the influence of global workspace restructuring (Khan & Vuopala, 2019; Kelly, 2021).

Researchers also emphasize the importance of further improving lifelong learning as a systemic phenomenon of the pedagogy of the future (Reid, 2020; Stoika, 2022). The process of learning and self-development, which takes place continuously throughout a person's life, is an obvious extension of the thesis that there is no firm specialty (Garivaldis, 2020). The concept of lifelong learning also confirms

that the educational process in modern circumstances cannot have a fixed end and end with a college or university diploma.

Instead, education is becoming a continuous process that is part of a person's life and covers the entire productive period. Lifelong learning involves the continuous updating and development of knowledge, skills, and competencies to achieve personal and professional goals (Devadze et al., 2022). This can be achieved by participating in various forms of learning, such as refresher courses, workshops, seminars, webinars, etc. (Abd-Rabo & Hashaikeh, 2021). Continuing education can also consist of self-study, primarily through the active reading of books relevant to the specialty, watching video tutorials, organizing and conducting research, etc. Lifelong learning is important because it allows people to improve their talents, abilities, and knowledge, which are necessary for professional and personal achievements (Eggens, 2021). It also fosters critical thinking, improves employee skills, expands opportunities for a career change, and contributes to the development of society as a whole. In the context of transformations in the global labor market, the strategy of using lifelong learning is a relevant response to the likely changes in the educational trajectory associated with the transformation of stakeholders' requirements for future professionals - their employees (Shattuck, 2018). Changes in technology and digitalization are equally dynamic, and studying them is also part of lifelong learning - with the transition to updated technological chains, the training system will also change, and lifelong learning will help to capture the peculiarities of this change.

Transformation of Higher Humanitarian Education: Trends in Thinking

Higher education in the humanities in the twenty-first century will require students to have a broader range of knowledge and skills to be able to work successfully in different fields and solve complex interdisciplinary problems (Spash, 2015). The main areas of higher humanities education in the future may include:

1.Comprehensive understanding of cultural processes and global challenges arising from the development of technology and globalization.

2.Developing critical thinking skills that allow you to analyze complex problems, draw conclusions based on evidence and arguments, and understand and evaluate different points of view (Williams et al., 2023). The humanities are often connected to other fields of knowledge, such as science, technology, and the arts. In the future, we can expect to see more courses combining disciplines from different fields of knowledge, allowing higher education students to broaden their knowledge and develop new skills.

3.Development of digital and technological skills necessary for effective work in the modern world. Various digital tools are already being used to teach humanities, such as virtual classrooms, online courses, and gaming platforms (Martinez-Nuñez et al., 2016). In the future, it is expected that such technologies will become even more accessible and developed, which will increase the effectiveness of learning and skill development.

4.Development of intercultural competence that allows you to effectively communicate and work with people of different cultures and nationalities (Suri & Chandra, 2021).

5.Developing ethical and moral values that allow students to understand and evaluate their actions and the actions of others in accordance with generally accepted standards of behavior.

6.Development of creative and innovative abilities, which allows students to develop new ideas and solutions, ensure intellectual development and change of society.

7. The ability to communicate effectively and cooperate in a group, which allows students to work successfully in a team and achieve common goals. Humanities education is not limited to the acquisition of specific knowledge but also focuses on the development of social skills such as communication, leadership, and collaboration (Nichols, 2020a). In the future, we can expect more attention to the development of such skills.

The latter emphasis is extremely important in terms of the peculiar “confrontation” between hard-skills and soft-skills in modern paradigms of educational development (Rosa et al., 2022). The ability to work in a team, endurance in performing tasks, the ability to persuade or make the necessary compromises are just a limited list of interpersonal skills in demand in the modern labor market, which are extremely valuable when selecting candidates for vacant open positions (Mohamad et al., 2017). For this reason, stakeholders pay attention to such competencies during interviews. At the same time, hard-skills are still an important factor in modern pedagogy, which still retain their importance in the process of acquiring the necessary knowledge, skills, and abilities. Hard skills consist of professional knowledge, professional skills, and practical skills that are necessary for effective and correct decisions in the field of performing actual tasks. However, in the future, according to researchers, the problem with using soft skills is that they are difficult to measure empirically, so the assessment of such qualities (e.g., the ability to be proactive, demonstrate high performance in teamwork, be creative, etc.) remains extremely subjective (Kem, 2022; Mohamad et al., 2017). University systems in Europe and the United States demonstrate special attention to soft skills. In the context of distance learning, this vector has not undergone major changes; on the contrary, the ability to work and find a common language with representatives of different cultures is extremely important in a remote work format.

Discussion

Therefore, researchers identify several important globalization challenges for the modern higher education system. Among them is the further evolution of distance education (Cavalcanti et al., 2021; King, 2020; Zawacki-Richter & Jung, 2023). The growing popularity of this innovative model of organization can lead to a decrease in the need to organize classroom classes, which simultaneously changes the attitude to the functioning of university campuses, classrooms, dormitories, etc. Distance learning also has its impact on the development of student communities and acquaintances between students, requirements for pedagogical methods, and means of conducting the educational process. Obviously, this form of organizing the educational process will not disappear completely after the COVID-19 pandemic is over and will continue to evolve (Dhawan, 2020; Dewi & Wajdi, 2021).

The effectiveness of distance learning is not inferior to traditional forms of teaching. This is confirmed in the works of many modern researchers (Devadze et al., 2022; Dhawan, 2020; Murphy et al., 2022; Parsons et al., 2022; Pinheiro & Santos, 2022). In addition, this form of education opens up opportunities for the internationalization of university education (Baber, 2020). The growth of international connections can allow students and teachers to gain experience and knowledge from different cultures and higher education systems, but it can also lead to increased competition between universities and change approaches to student enrolment.

Researchers' assessments of the importance of technological innovation also seem to be fair (Bogossian, 2022; Zhang & Aslan, 2021). The development of technology can create new learning formats, improve access to knowledge, and ensure deeper integration with other fields of science and technology. Expanding the diversity of higher education will increase the number of specialties and study programs (Sardi & Carvalho, 2022; Simpson, 2013). At the same time, there may be an increase in

competition between higher education institutions, which may result in some of them ceasing to exist as less competitive (or significantly limiting the quality of educational services provided). A related challenge is funding (Parsons et al., 2022). Securing funding for the development of higher education is a challenge that can affect the quality of education and accessibility for different social groups.

Acquiring the necessary level of soft-skills will also continue to be a challenge for both the humanities and the sciences (Gourlay, 2020). The training of university specialists should take this aspect into account, which is in line with the future development of teaching and learning emphases. It is impossible to predict exactly what features of teaching humanities will prevail in the future, as much depends on technological and cultural trends that change over time.

Obviously, the most progressive forecasts of higher education development are possible under conditions of stable development of the international situation (Guri-Rosenblit, 2017; Kirac et al., 2022). At the same time, the Russian aggression against Ukraine has demonstrated that other ways of development are possible. The flip side of globalization may be an anti-globalization process in which individual countries or regions may be closed to the world community (Stephanidis & Antona, 2022). In particular, since April 2022, Russian and Belarusian higher education institutions have been excluded from the Bologna system. This news was received calmly by the governments of these countries, and through propaganda opportunities, was presented in a positive way - in the spirit of the possible restoration of the “best in the world” Soviet educational system.

In fact, such actions by authoritarian regimes may pose a certain danger to the development of higher education in the light of globalization in the future, although they will primarily affect Russian and Belarusian citizens themselves. At the same time, China or other countries with authoritarian closed regimes may also demonstrate a desire to close their own educational systems. At the same time, such actions should be perceived as a side element of political confrontation, since in today's realities, no special alternatives to educational globalization have been proposed.

These challenges can be summarized in the table below (See Table 1).

Table 1

Challenges to the Modern Higher Education System

Challenges to the higher education system	“Answers” to the challenges of the higher education system
Evolution of distance education	Distance education has demonstrated its effectiveness as a separate innovative mechanism for organizing the educational process. Further development of distance education is a natural continuation of the current stage of its use.
Implementation of technological innovations	The next transformations in the technology sector are difficult to predict at this stage, as the dynamics of change in digital technologies is high. At the same time, the use of new digital solutions can improve the quality of education, although it requires training and adaptation of students and teachers.
The need for an appropriate level of soft-skills	Working with other people, despite technological advances, remains relevant, even perhaps more so than before.

Increased competition between higher education institutions

Increased competition between educational institutions may lead to better conditions for the best institutions to continue operating. This aspect will contribute to the quality of higher education.

Stable development of the political and international situation

Given current trends in the new formation of military and political blocs, the consequences of this challenge are difficult to predict. Outright and aggressive anti-globalization actions do not lead to an improvement in international peace and, in particular, in the quality of education.

Source: authors' development.

Thus, globalization challenges and responses to them generally contribute to improving the quality of higher education. At the same time, it is difficult to take certain perspectives into account, as it is impossible to determine the exact consequences of the unfolding political tensions.

Conclusions and Implications

Thus, higher education in the twenty-first century will play an important role as a condition for employment, professional and social skills, and one of the circumstances of globalization. Responding to globalization challenges will require structural changes in the university education of the future. First of all, we are talking about the challenges of the labor market. The training of specialists may become more complicated due to rapid digital and technological transformation - changes in software, for example, are happening faster than a full-fledged four-year bachelor's degree. In particular, educational institutions in Europe and the United States have paid considerable attention to responding to this challenge. One of the mechanisms is the introduction of lifelong learning as a phenomenon that will accompany human life and require constant self-improvement. Another manifestation of adaptation to the likely changes in the higher education system will be an emphasis on digital technologies, programming, and robotics. Manufacturing professions are undergoing major changes, and the focus of training for such professionals will certainly include mastering software and ICT skills.

Humanities education is also undergoing changes. It will include additional emphasis on a comprehensive understanding of cultural processes and global challenges, the development of critical thinking, digital and technological skills, intercultural competence, ethical and moral values, creativity and innovation, and the ability to communicate effectively and cooperate in a group. Particular emphasis can be placed on the development of soft-skills as special requirements for future professionals. It is worth noting that for certain political reasons, educational systems in certain countries may find themselves on the sidelines of globalization processes, but this will result in scientific and pedagogical stagnation rather than a vector of independent development.

Suggestions for Future Research

The problem of adapting the educational process to the 21st century challenges has other promising areas for research, as modern society faces numerous new problems and tasks that require a qualitative renewal of the educational system. Some of the possible research perspectives on this topic include:

1. A thorough analysis of the technological transformation of the education sector based on the introduction of new methods and forms of interaction with all participants of the educational process. The development of information technology, artificial intelligence, virtual and augmented reality creates

new opportunities for education. The research can focus on the use of these technologies that improve the learning process, engage students in dynamic learning activities, and develop new competencies.

2.The development of critical thinking and the creative design thinking. Given that these trends are relevant in modern pedagogical thought; further empirical analysis of their development in practice against the background of the impact of global problems is an important topic for further investigations. Changes in society and the labour market require people to be able to analyse, think critically, solve complex problems, and be creative. The research can analyse methods that foster these skills in students and learners, as well as test the effectiveness of different learning approaches.

3.Given that the Russian-Ukrainian war is still ongoing, it is not yet possible to state its final impact on the adaptation of Ukrainian education. Accordingly, a reassessment of this adaptation in the near future will be a promising direction.

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Digital Approach in Pedagogy and Psychology of the Future: Trends, Globalization Challenges

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Abstract: People have been interested in the phenomenon of learning for a very long time. An impressive number of hypotheses and theories of learning have emerged along with the development of human thought and the scientific method of cognition of nature. The use of computers in education has been the subject of much research and debate. Technology has often been seen as a tool to help both teachers and students. Research in related literature has shown that we learn differently and engage in different types of knowledge creation when we use technology. The use of technology in teaching and learning has fueled the development of digital pedagogy. The SCOPUS and Web of Science databases were used to assess the problematic nature of the topic. 144 articles were analyzed, of which 20 articles related to the topic were taken for analysis. This paper analyzes trends in the digital approach to pedagogy and psychology of the future in the context of globalization.

During the 2022-2023 academic year, a survey was conducted in three stages. The empirical study involved 216 teachers of pedagogical faculties from different higher education institutions of Ukraine who filled out a questionnaire through Google forms.

The results of the survey have identified the main ideas of the digital approach to education, made it possible to identify the most popular digital learning tools, outline key areas in the education of the future, and determine the main trend in pedagogy in the face of globalization challenges, namely, a change in the educational paradigm that would allow digital technologies to coexist with traditional educational norms.

Keywords: globalized digital pedagogy, digital approach, teaching, digital tool.

Introduction

Digital pedagogy is digital education, which is the study of digital technologies for learning and the approach to these tools from a critical pedagogical perspective. It is about the thoughtful use of digital tools and about filling in the educational process when digital tools are not used, about paying special attention to the impact of digital tools on learning and students' psychological states. In other words, digital pedagogy is the use of digital tools to improve or modify the educational experience (Bećirović, 2023b). Digital tools can range from PowerPoint presentations to full MOOCs and flipped classrooms (Crawford et al., 2020). They can include blog assignments, use of social media in the classroom, creation of curricula, and students using digital tools to check assignments (Lynch, 2023). Digital pedagogy is an attempt to change teaching and learning in different ways through the judicious use of technology. Mainly, it is the critical pedagogical approach that thoughtfully uses pedagogical digital tools in teaching and deeply explores their impact on applied pedagogy. In addition, digital pedagogy encourages teachers to give students space to work independently and creatively (Rodés et al., 2021). An important point is the ability to find the right information related to "learning itself" as well as additional information that complements the knowledge gained. This emphasis on critical and independent thinking connects digital pedagogy to the ideas of constructivism: students learn best when they are active participants in the learning process, not when they receive passive knowledge (Potapchuk, 2023).

Learning is a social process. The goal of teaching and learning is to provide students with a range of knowledge and experiences that facilitate future professional activities. It is the process of considering why and how to implement technology that makes research on digital pedagogy relevant.

Research Problem

The development of digital technologies and the challenges of globalization pose new challenges to the education system. In the short term, radical digitalization means a shift in priorities in education, specifically in pedagogy and psychology. In the context of global geopolitical challenges, educators are facing a particularly critical issue of opportunities and practices for adequate learning through educational systems that would meet the requirements of today. In this sense, digital pedagogy and the digital approach in pedagogy and psychology can outline the trends in the education of the future.

Research Focus

The world sees from the war in Ukraine that the problem of education is becoming particularly acute. This state of affairs is not the result of a lack of education or lack of access to information. Russia's armed aggression has led to catastrophic consequences that are beyond the scope of the civilized world's perception. Today's education is ready for the rapid development of technology, and one should not question the educational process in general. However, in the face of the challenges of the technological process and globalization, it is necessary to change the very concept of education (Bećirović, 2023a). In our opinion, the main trend of pedagogical and psychological education of the future is to change the ways of providing and receiving education with a focus on the digital format.

Research Aim and Research Questions

A review of the related literature shows how rapidly the use of new technologies in education is developing. Digitalization seems to be becoming an educational panacea (Chatterjee et al., 2023). Educators and psychologists emphasize the educational value of digital pedagogy, which is gaining increasing interest among educators. Thus, the purpose of this paper is to analyze the digital approach in pedagogy and psychology within the framework of digital pedagogy, to outline the trends and challenges of globalization for the education of the future. Objectives: to outline the basic concepts of digital pedagogy, to name digital pedagogical tools that facilitate teaching, to analyze the phenomenon of transformational learning as a trend for future education.

Research Methodology

General Background

This study used a deductive approach, which involves the use of theoretical methods, such as literature review and analysis of research findings related to pedagogical and psychological education in Ukrainian higher education institutions. These methods helped to identify teaching strategies that have already been tested in the educational process and to develop new hypotheses to be tested. In addition, additional research methods were used in the study: analysis, synthesis, and systematization of scientific literature on pedagogy, psychology, encyclopedic and reference books, educational and methodological publications, and Internet information resources to clarify, compare and contrast approaches to the problem.

Sample / Participants / Group

The paper addresses the issue of digital pedagogy, taking into account how it is perceived by teachers of pedagogical faculties of Ukraine and how it is interpreted by modern scientific thought. The empirical research methods included a thorough survey to collect quantitative data on the topic of the paper. The survey method was used to analyze the results. Numerical data helped to assess the validity

of the hypothesis and proved that innovative teaching strategies make the educational process more effective.

Instrument and Procedures

The survey was conducted during the 2022-2023 academic year and included three stages: preparatory (May-August 2022), when a literature review was conducted and a hypothesis was developed based on the data obtained; experimental (September-December 2022) when the survey was conducted; and final (January-February 2023) when the main ideas were highlighted in the context of this topic. The empirical study involved 216 teachers of pedagogical faculties from different higher education institutions of Ukraine who filled out a questionnaire through Google forms. The focus group was informed about the objectives of the study, and all teachers participated voluntarily. To obtain the necessary data to test the hypothesis, teachers were interviewed online using Google Forms. The questions concerned strategies of digital pedagogy and digital approach in the educational process. Teachers were asked to voice their own vision of digital pedagogy, name digital pedagogical tools that facilitate their work, and say how they perceive transformational learning.

Data Analysis

The answers received during the survey were analyzed. The combination of similar opinions allowed us to identify the main concepts and tools of digital pedagogy and characterize the phenomenon of transformational learning, which is becoming a trend in Ukrainian higher education institutions. The conclusions are presented in the following sections below.

Research Results

According to the survey results, digital pedagogy revolves around three main ideas: intentionality, collaborative learning and freedom of choice, and transformative teaching.

Table 1

Three Concepts of Digital Pedagogy

Features of digital pedagogy	Trends
Intentionality	Integration of educational tools. Tactics of teachers
Collaborative learning	Consideration of content, including concepts and skills, as well as methods that educators and students can use to achieve objectives
Transformational learning	Readiness for interdisciplinary work in the context of digitalization

Source: authors' own development.

Teachers make intentional pedagogical decisions to integrate educational tools to facilitate learning. They think carefully about their tactics when creating learning experiences. Educators consider the content, including concepts and skills, and the methods they and students can use to

achieve the program content objectives. Educators decide which technology can both deliver content and support pedagogy by asking three important questions:

What will students learn or what knowledge could they acquire? What method will help students achieve their goals?

What tools and resources do students need to succeed?

Consideration of the use of technology in the context of a digital approach to pedagogy has shown that the teacher requires both dynamic knowledge and a reconsideration of his or her own role.

Digital pedagogy focuses on the conditions for students to perform “expert learning”. That is, students “learn” how to learn, set goals, and share what they know. It also helps teachers develop in their role as facilitators of collaborative learning. They stand alongside their students instead of “dominating”. The digital approach allows teachers to empower students to choose how they learn and share their knowledge.

It means that when practicing digital pedagogy, teachers should provide students with learning experiences that include multiple means of engagement, representation, action, and expression, regardless of whether these means use digital tools. The development of digital pedagogy provides an opportunity for teachers to (re)consider how they manage and organize their work, including how and when students begin the learning process, building on their own prior understanding and applying or sharing what is happening in the classroom with other students. The intentional integration of tools and technology gives teachers the opportunity to enhance student dialogue, discourse, and reflection. Classes are not limited in time and can follow any model. Hundreds of digital pedagogical tools have been created to give students autonomy. They improve the administration of academic processes and encourage collaboration. They also facilitate communication between teachers and students. Here are the most popular pedagogical tools of the digital approach (Table 2):

Table 2

Digital Pedagogical Tools to Facilitate Learning

Positive characteristics	Name
An educational platform that offers games with questions. With this pedagogical tool, teachers can create quizzes, discussions, or polls that complement the classroom. The material is designed by the teacher and students answer questions while playing and learning. Kahoot promotes learning through play, which increases student engagement and creates a dynamic, social, and fun learning environment.	Kahoot
A digital educational tool to improve student behavior. Teachers provide students with instant feedback and good lesson planning is rewarded with points. In addition, students develop a more receptive attitude to the learning process. This program provides students with real-time notifications, such as “Bravo David” and “+1”, for collaboration.	ClassDojo
A pedagogical tool that connects teachers and students and is learned in a social network. In it, teachers can create online collaboration groups, administer and provide learning materials, measure student performance, and communicate with parents, among other things.	Edmodo
A digital tool that allows you to create multimedia presentations. It allows you to create multimedia presentations. In addition, it has dynamic slides in which you can integrate interactive maps, links, online quizzes, timelines, and Twitter videos, among other options. During class, teachers can share academic presentations with students that are visually adapted to different devices.	Projeqt

A digital whiteboard where participants (students and teachers) contribute by pinning various information. Digital classroom tools such as Padlet motivate students to work together and think as a team. You can customize the background (standard whiteboard, interactive whiteboard, wood, sand, etc.), the layout (grid, flow, or freeform), and control who has access to the table. Padlet

Source: authors' own development.

The trends of globalization, addressed to pedagogy and psychology, will require a total change of teachers for the sake of a changing world. Based on the main trends of globalization and in the context of accelerated updates of needs, values, and knowledge, the preparation of teachers of the future should be carried out in accordance with the following five axes:

- 1) It is necessary to prepare educated teachers who are aware of interdisciplinarity or have specific knowledge that they can creatively pass on to their students, as they are responsible for their intellectual development. In addition to teaching, there is also the need to be a cultural and ideological teacher;
- 2) In the context of globalization, teachers are needed who are experienced in the ability to teach new things, with highly variable and increasingly less common features and fragmented knowledge of students;
- 3) Teachers need to know how to act autonomously, be able to research, innovate, solve problems, or even anticipate them. To this end, it is expected that research-based training, in the context of its practice, will revolutionize basic and in-service teacher education programs in the near future;
- 4) Teachers who drive social progress will take on new roles that will transform them from consumers of knowledge products to researchers and producers of knowledge that they will reinvest directly for the benefit of their students;
- 5) Traditional learning environments where teaching careers are prepared will have to adapt their concepts and curricula to the new reality.

The educator of the future is someone who knows how to prove themselves as an employee, a serious partner who works for the success of education, and who does not hesitate to critically examine the meaning of their actions. Education systems are set for profound changes, and teachers will act in accordance with these factors, which will have a direct impact on their responsibilities.

The new type of teacher is a realized person who knows how to communicate, express their desire to help, and who is engaged in the continuous construction of their identity. This is also where the whole issue of teacher well-being comes in because the construction of a positive identity that reflects their responsibility and commitment to the profession is directly dependent on their living conditions. This applies to their remuneration, working conditions, and individual health, as well as the health of their students, social recognition of their profession, etc. However, the well-being of teachers, to varying degrees in different countries, is not always ensured.

An analysis of the perceptions, expectations, and desires of modern educators in the light of digitalization and the challenges of globalization shows that their way of thinking goes far beyond simply teaching a curriculum and transferring knowledge. The possible future of digital pedagogy is rooted in idealized notions of what they would like to see realized. Moreover, these ways and the desire to practice “in trend” are congruent with personal values.

New teaching methods are already being implemented by a large number of teachers in Ukraine. They are rarely advertised because they go against the productivist paradigm that still largely dominates “mass” education. The digital approach allows teachers to exercise their pedagogical freedom without departing from the programs.

Discussion

Digital pedagogy may seem like a complete break with old educational systems. For some, digital or virtual education is a new system that can be a complete replacement for traditional means of knowledge exchange (Díaz-Noguera et al., 2022). At the heart of the digital learning problem, the main challenge is the unsafe options for digital tools.

The new art of learning should be developed on a well-understood synthesis between classical pedagogy and digital pedagogy, in a hybrid mode that combines face-to-face and distance learning. According to Mashrabovich (2022), digitalization cannot be a substitute for traditional education. While the democratic distribution of digital resources, free access to information, and high teaching standards guarantee the quality of education in the current digital space. In the context of globalization, the technical work of to provide innovative tools is rapidly intensifying: useful information adapted to student needs in free access, current digital tools (personal computers, tablets, Wi-Fi, etc.), and cooperation with adapted teachers who are proficient in ICT.

The object of new knowledge becomes interactive. It uses the integration of direct or indirect contact systems and the use of reality modeling tools adapted to learning at the initial level and in continuous learning to virtually solve problems: from the simplest to the most complex (Ricklefs et al., 2023).

The digital approach in pedagogy and psychology brings an important dimension to performance monitoring with attractive tools adapted to the new generation of students. In this aspect, Smith (2021) emphasizes the need for supervision in digital learning. Such supervision and performance monitoring by teachers should take place both face-to-face and remotely. Ukrainian scholars are increasingly talking about a trendy humanized “cyber-education” based on modern Socratic exchange. Despite the mass nature of teaching, this is made possible by individual teacher-student interactivity through ICT (Zhorova et al., 2022).

The transfer of knowledge through digital tools should promote student motivation and autonomy, which carries the meaning of responsible individual and collective emancipation (Rulyansah et al., 2023). However, in this sense, we believe that freedom is not the ability to do what you want. Rather, it consists of learning responsibility and understanding boundaries and norms.

The merit of digital learning is that it has emphasized the need for live human relationships, which are taught by the teacher. The main trend of globalization in education, oddly enough, is the preservation of the position of the teacher, the family institution, and traditions.

Anderson (2020) identifies a culture of innovation as one of the main trends in the education of the future. It is reflected in the fact that learning is open to new ideas, as well as in the promotion of experimentation and acceptance of failure among students. This new pedagogical trend implies a change in the positioning of the learner and the teacher. Atamanyuk et al. (2021) talk about deep learning. This method of teaching involves students in critical thinking, problem-solving, collaboration, and self-study, in conducting projects, and engaging students in research. Learning assessment is expected to change in the coming years. This evolution is due, in particular, to the explosion of digitalization of learning and

distance learning. These tools are expected to improve learning analysis and increase the accuracy of assessment, including by focusing on competencies and facilitating student feedback. In this context, we believe it is advisable to create new learning spaces that are more active and interactive (Cowling et al., 2022). Spaces are becoming increasingly modular, flexible, and connected to support distance learning and collaboration. Many scholars see the future of education in blended learning. Many higher education institutions are now combining face-to-face and distance learning, providing students with online resources prior to face-to-face practical training (Greenhow et al., 2021). Finally, the last trend that emerges from this study is collaborative learning. It is based on 4 key principles: placing the student at the center of the learning process, facilitating interaction, working in groups, and co-developing solutions.

Today, learning means transferring knowledge and verifying that this transfer is effective, but also creating contextualized knowledge (Harahap et al., 2022). According to Köseoğlu et al. (2023), the Internet makes it possible to free the teacher from the task of communicating knowledge objects that can be shared and exchanged between teachers around the world. Scholars emphasize that the teacher is a “master navigator”. He or she organizes the space-time pair: he or she is skilled in synchronous and asynchronous, face-to-face and distance, and relationships. The main advantage of the trends in education is that today's students are shaping the future. In other words, they have open minds and unlimited possibilities (Ryhtä et al., 2020). The challenge of today is to create new rhetoric, in the full sense of the term. It is not about sharply opposite models of learning, which actually coexist as practice shows, but about the conscious acceptance of the degree of displacement and the study of its social and pedagogical issues.

Perhaps it is this shift that creates a major cultural problem for the education system. Learning with digital technologies means leaving scholasticism behind to enter the interactive. It is about being able to transform this dual relationship into a multiple relationship, where the teacher becomes the referent of the relational network formed by the learning chain. It is important to motivate educators to integrate digital technologies into their educational art and to motivate students to approach their learning paths in an active, responsible, and adult way. This is the main challenge of the education of the future.

Conclusions and Implications

Perhaps it is no coincidence that, under the pressure of globalization, the debate on education today is more focused on moral issues. Digital technologies are an important contribution to pedagogy and teaching, but their impact is mechanical and insufficient. There is a need for a global approach to the overall reconfiguration of the education system. This paper analyzes the digital approach in pedagogy and psychology of the future. The survey helped to identify the main ideas of the digital approach to learning: intentionality, collaborative learning and freedom of choice, and transformational teaching; comment on the most popular digital learning tools: Kahoot, ClassDojo, Edmodo, Projeqt, Padlet. The analysis of related literature allowed us to outline the main trends in the education of the future: a culture of innovation, in-depth learning, blended (hybrid) learning, and collaborative learning. The main trend in education in the face of globalization challenges is a paradigm shift that would allow digital technologies to coexist with traditional educational norms. It is not entirely correct to think in terms of replacing one model with another. Rather, there is a need to find the richest and most effective recombination, in a kind of didactic mixture.

Suggestions for Future Research

In terms of the research topic is necessary to briefly indicate the main prospects for future researches. In structural terms, it is promising analysing the concept of architecture and design of the digital education system of the future. Such a study will reveal the problems of companies functioning in the segment of digitisation of educational content. In the future perspective it will have an extremely high profitability than organisations in the segment of predecessors, i.e. those who introduce digital technologies. Thus, the main focus should be on the first link of the system, i.e. digitisation. Their services and applications need to be tested in pilot projects before being used in the classroom in order to determine their exact impact on student learning. There is a need for evidence-based digital educational interventions. Without this, the education system is entering unknown and untested territory, which will obviously bring waves of uncertainty, scepticism and resistance from all actors in the education system. No less interesting is the analysis of the management and control of the complexity of digital information and a deeper understanding of each element of various digital systems from a dynamic, cross-criteria point of view, an analysis of how they fit together, the possibility of introducing new components at any time and, last but not least, the knowledge about the maintenance of the entire set of processes in a state of efficiency and productivity optimisation.

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Digital Competence and School Leadership in Greece

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Abstract: The main purpose of this study is the assessment of principals in special secondary education schools for students with special educational needs digital competence (SEN) in Greece. In addition, the main goal was to highlight digital competence principals that offer in their administrative issues. In order to collect relevant to the purposes of this research data, the quantitative method based on survey and questionnaire was mainly used. The quantification was effectuated with the use of the Statistical Program SPSS suitable for descriptive and correlation analyses of collected of data. The use of descriptive statistics allows the presentation of the demographic data of the research as well as gives the trend that is resulted from the answers of the research questions that were asked. Additionally, the reference to the methods of inductive statistics was applied. These methods are focused on the possibility to rely on findings from a sample of observations. The inductive statistics evaluates the

questionnaire confidence. The descriptive statistics described the main characteristics of individual variables. For these reasons, the questionnaire was distributed to a great number of principals of special secondary education schools of all regions of Greece. In consequence of Covid-19 and geographical distance, the questionnaire was effectuated online via Google forms. From the 198 principals that obtained the questionnaire, only 174 principals sent back the answer. The results demonstrated that the digital competence significantly contributes to the principals' administrative management. The digital competence helps saving the time and reducing the volume of documents ensuring their easy access to the digital world. It is important to evaluate the principals' digital competence and its impact on their administrative tasks in Greece in order to enrich the scientific research in Greece concerning the crucial topic and its impact on the educational community.

Keywords: special education; principals, digital competence, administrative management.

Introduction

It is evident, that today's world main trend is the digitalisation (Jackman et al., 2021). In this world, good school leadership in special schools enables effective functioning, thus maximising the contribution of each educational structure (Hatlevik & Christophersen, 2013; Pettersson, 2017). The Information Communication Technologies (ICT from now on) rapidly entered every school, so, principals, nowadays, are facing new challenges (Pettersson, 2017; Zeike et al., 2019). In the context of information and technological progress, education should respond and not just be an observer of events (Ottestad & Gudmundsdottir, 2018). So, the importance of this article is to justify the crucial role that principals of special secondary education schools have.

Of particular significance is the entrance of digital competence to school units by its leaders as well as the elimination of any type of discrimination in its sphere (Hatlevik & Christophersen, 2013; Pettersson, 2017; Zeike et al., 2019). The fact that the digital competence must be more supported and developed in the school conditions is undeniable. As the school leaders should be able to create and share information's as well as to use it in their teaching methods. Nowadays, in the age of digitalisation, every person has the right to have access to education. Besides, it the main bet that the modern education system and school units must answer (Nanou, 2013).

Taking into consideration the crucial parameters of digital competence and school leadership, this study attempts to fill the research gap concerning the topic existing in Greece. Such a research is firstly one evaluated in Greece. In this survey a possible large focus group of school leaders of special secondary school was included.

Research problem

The research problem is to examine principals' digital competence in Greece. The question is how increasing principals' digital competence contributes to better school leadership?

Research Focus

The Role of School Leaders of Special Education Schools in Nowadays Multicultural Environment. The term of special education needs is referred to any educational intervention and support that must be given to students with medical, social and bio-psychosocial disorders (World Health Organization, 2007). These programmed interventions are not limited and can take place in every country. The special

education intervention is addressed to students with “differences” or “to gifted” ones (Poulter & Timpson, 2015, p. 15).

Every democratic society must promote the same rights and access to educational and social life for every citizen and student including, of course, students with SEN (Stankovska et al., 2015).

In this complex framework, the role of every school leader is multidimensional as, except from its administrative role, every school leader has to promote a democratic culture where any kind of discrimination has no position (Pont, 2014).

Digital Competence. In Europe, the term “digital competence”, in line with digitalisation trends, means a competence that every active citizen should have (Hatlevik & Christophersen, 2013).

Additionally, to all roles that every school leader has, they must provide suitable competences, including the adaptation of digital competences to all students in order to familiarise them in correspondence with the complex social- economic needs of the 21st century (Roblyer & Doering, 2014). ICT as well as the digital competence has rapidly modified the pedagogical and administrative approaches. In this framework, the digital competence has changed the learning and teaching techniques (Area-Moreira et al., 2016).

The digital competence is expounded as the creative, analytic, and safe apply of ICT in people activity and social incorporation (Ottestad & Gudmundsdottir, 2018).

According to Janssen et al. (2013) the digital competence is referred to the legal knowledge of its role.

After all, digital competence is described as one of the eight key competences that every active citizen must master in the 21st digitalised century (Guitert et al., 2020).

Digital competence promotes the idea of innovation and active membership. For all the above reasons, in Spain the digital competence has entered to the school curriculum (Espinosa et al., 2010).

The DIGCOMP2.0 divides the digital competence into five areas including: “Information and data literacy, communication and collaboration, digital competence creation, safety, problem solving” (Brande et al., 2017, p. 78).

According to Raftoulis et al. (2021) the digital competence is so crucial for school leaders as it helps investigating the local needs and facilitating the administrative issues.

Consequently, this survey is focused on the usefulness of digital competence in leadership. Additionally, the factor that pushes and prevents the leaders from its use is examined. Finally, the self-assessment and self- evaluation of school leaders’ factors are determined.

Research Aim and Research Questions

The goal of this article is focused on the necessity of digital competence use by school leaders as well as the requirement for further training in order to involve it in administrative sections. Especially, the significance of the digital competence and the training of leaders are demonstrated.

The main research questions are the next:

- What is the gradation between the digital competence and the demographic elements of school leadership?
- Is there any connection between the digital competence and the level of self- assessment of school leadership?
- Does the digital competence affect the extent of the digital use of school leaders use it in school organisation?

Research Methodology

General Background

In this survey a large majority of school leaders of special secondary education schools from Greece was involved. For this purpose the quantitative method that allows the generalisation of the results was used. The aim was to investigate the factors that determine principals' digital competence as well as their self- evaluation. Furthermore, the factors that facilitates and make difficult the use of digital competence was analysed. Finally, this survey aim was to examine the digital competence fields that are used in school by the leadership in teaching.

Sample/ Participants/ Group

The sample of this survey consisted in 174 school principals of special secondary education schools. In Greece the following special secondary structures exist:

- Special high school
- Special gymnasium
- Special Gymnasium with Lyceum classes
- Special laboratories of professional education and training
- Departments of Integration.

In this study, 15 directors of integration faculties and one director of a special general education gymnasium-lyceum did not wish to respond to the survey. This survey was carried out during the period May-June 2020. As it has been mentioned, the questionnaires were sent in electronic form via Google forms to the mails of principals. Some questionnaires were physically given to those principals that were near to our place of residence.

After the questionnaires gathering, the procedure of entering the data to the statistical package SPSS 17 (Statistical Package for the Social Sciences, SPSS-Version 17.0) was evaluated. Roussos and Tsaousis (2002) refer that the descriptive statistics is suitable for the explanation, planning and display of data while the inductive statistics related to the rule of research questions were both used for the analysis.

The control of the questionnaires that has been made before the codification where every question took a code number ensures the accuracy of the questions (Cohen & Manion, 1994; Moser & Kalton, 1977).

Instrument and Procedures

As it has been mentioned above, the quantitative method was used. The last one significantly helps the researcher making the general proposals for all the population that it is difficult to take part in a survey. Data was collected in a numerical form consequently the analysis was made through the use of

statistics (Apuke, 2017). In the survey the answers were by using specific questions related to the topic that is researched (Check & Schutt, 2012). The survey research is suitable to explain human attitudes and behaviours (Singleton & Straits, 2009).

In terms of survey-type study use it was possible to evaluate a descriptive study that intends to explain and interpret the digital competence of school leaders (Tripodi & Bender, 2010).

The questionnaire was the main tool to gather and investigate the answers of the school leaders.

The use of the questionnaire had its main advantage. It was not subjective but it reflects the reality related to participants behaviours and beliefs (Jain et. al., 2016).

Initially, after having piloted the questionnaire to 20 principals the main corrections according to related suggestions of participants so as to be corrected (Gay, 1996) some omissions were made. Finally, the questionnaire was improved.

The questionnaire was repeatedly modified until taking its final form. The last version has the following parts. The questionnaire was sent via Google forms to all special secondary schools' e mails. Only 15 leaders of integration departments and 1 of special high school haven't answered having doubts about the results.

A cover letter that was presented and explained to them was sent to all school leaders. Additionally, there were directions and clarifications related to the completion of this specific questionnaire. One of the most important parts was the part that informed participants concerning their anonymity.

The questions of first part were about personal information's of principals.

The questions of second part concerned their agreement of using digital competence in school units and their readiness to use it, according to Likert scale.

The questions of third part of the questionnaire that included the use of the Likert scale was related to the extent of school principal's agreement or disagreement according to the need of using digital competence in administration.

The questions of the last part were part of the Likert scale making attempts to detect the self-evaluation of school leaders' digital competence as well as the factors that would be motivating to them. Moreover, the participants listed the factors that have a negative effect to them.

In this study, a close survey (questionnaire) was used. This type is suitable for the statistical analysis providing important information's according to the subject under investigation (Javeau, 2000).

Research Results

In this survey 174 people were involved. A percentage of 51% were men and 49% were women. The most school leaders are between 51-60 years old (53%).

A percentage of 59% of the participants have a postgraduate diploma.

The most leaders have 24 years of educational service while the average of years in administration is 7.6.

At a rate of 93%, these school leaders have attended a special ICT training program. The digital competence as well as their educational use was both the most frequently attended training programs. At a rate of 40% they frequently use the digital competence for administrative purposes.

Firstly, in question 16 is analysed the digital competence and its usefulness. This specific question was divided in twenty-one sub-questions. The general mean was 3,703 and the sub-means were about 2.5 to 4.5. The analysis proves a very large influence between two questions. Before their using, the questions, using Cronbach's alpha = 0.934 (Table 1) were checked for their reliability. The reliability has proven to be excellent. The exclusion of question 16.3 were excluded, would slightly increase the reliability of the questions (Cronbach's alpha= 0.951) (Table 2).

Table 1

Effectiveness of Digital Competence

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.934	.938	21

In table 2 the correlation between digital competence and its use was analysed. For this reason, a control between the type of school (Q4) and the answers of question group 17 (mean.Q17) was made.

Table 2

Digital Competence and Extend of Its Use

	Type of school where do you work (Q4)	N	Mean Rank
Do you find useful the following capabilities of ICT in the school leadership of your special education school with immigrant students?(mean.Q17)	Special Vocational High School	18	77.75
	Special Vocational High School with Lyceum Classes	31	89.98
	Special Vocational High School / High School	30	82.07
	Special Vocational Education and Training Laboratories	49	70.81
	Department of Integration	46	110.97
	Total	174	

Table 3

Chi-Square Tests: The Frequency of Digital Competence and Years of Experience

	Value	df	Asymp. Sig. (2-sided)
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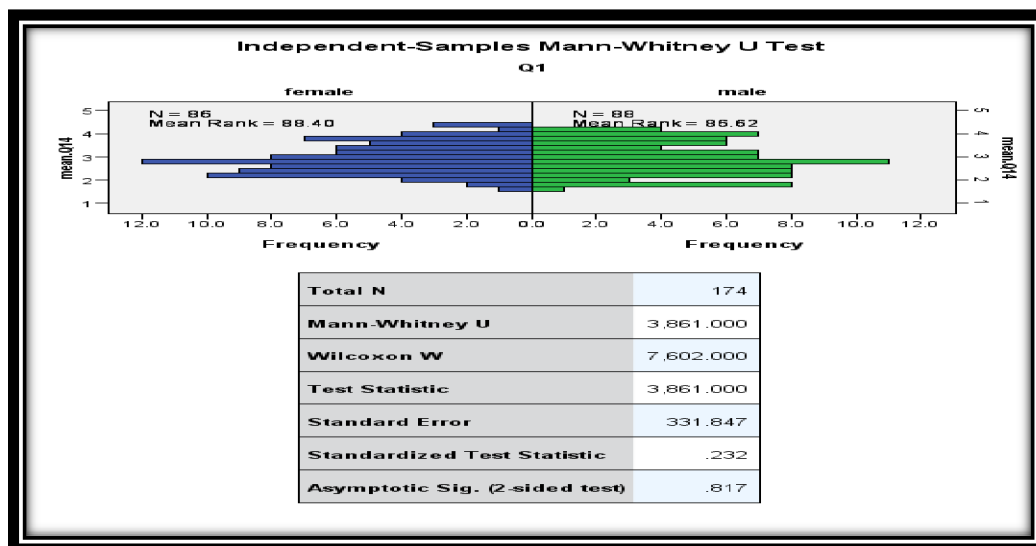
Pearson Chi-Square	148.935 ^a	9	.000
Likelihood Ratio	140.657	9	.000
Linear-by-Linear Association	98.222	1	.000
N of Valid Cases	174		

It has emerged that the rate of p-value was = 0.000. It was less than the significance level $\alpha = 0.05$. Consequently, there was a crucial correlation between the regulation of digital competence and the relative years of experience. Table 3 proves this correlation.

Next, the correlation between the gender and digital competence was examined. Accordingly, the gender (Gender, Q1) and the frequency of communication (mean.Q14) were checked.

Figure 1

Independent- Samples Mann- Whitney U Test



The above analysis demonstrates that the gender is not correlated to the frequency of digital competence in administrative issues (Figure 1). Especially, the rate of p-value = 0.817, being greater than the significance level $\alpha = 0.05$.

Moreover, the correlation of digital competence and the need for additional training is evident. To examine this correlation, the years that every leader used digital competence was controlled (Question 11) and it is shown that the need for additionally training would improve their digital competence (Q19.4) (Table 4).

Table 4

Correlations: Years & Training

	Training on issues about digital competence (Q19.4)	Years of experience in the use of ICT (Q11)
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Spearman's rho	Training on issues about digital competence (Q19.4)	Correlation Coefficient	1.000	.055
		Sig. (2-tailed)	.	.473
		N	174	174
	Years of experience in the use of ICT Q11	Correlation Coefficient	.055	1.000
		Sig. (2-tailed)	.473	.
		N	174	174

From the table 4, the conclusion emerges that the value of p-value = 0.473 being greater than the significance level $\alpha = 0.05$. Consequently, it is observed that there isn't any statistically important correlation between the above questions. Consequently, the years of experience in the use of ICT are not connected with their further training.

Furthermore, the correlation or between the digital competence of school leaders and their self-assessment is important to be examined. For the above needs, the experience of school leaders in ICT (Q11) and the digital competence of them was checked (Q15.1) (Table 5).

Table 5

Correlations: Years of Experience and Self-Assessment

			Years of experience in the use of ICT(Q11)	Perception of digital competence (Q15.1)
Spearman's rho	Years of experience in the use of ICT (Q11)	Correlation Coefficient	1.000	.626**
		Sig. (2-tailed)	.	.000
		N	174	174
	Perception of digital competence Q15.1	Correlation Coefficient	.626**	1.000
		Sig. (2-tailed)	.000	.
		N	174	174
**. Correlation is significant at the 0.01 level (2-tailed).				

From the table 5, it is proven that the rate of p-value = 0.000, it is less than the significance level $\alpha = 0.05$. From the above analysis, it is proven that there is a statistically significant dependence. Therefore as more years' experience any school leader occupies with ICT, so much better the digital competence is (cor coeff: 0.626).

Discussion

It is worth mentioning that it was the first research concerning the digital competence of school leaders of schools and, especially, of special secondary education schools in Greece.

From the above analysis the following can be concluded: The waste majority (52,3%) of school leaders of this survey were between 50-60 years old. Only a small percentage of 10, 3% of leaders seemed to be under 61 years old while only 6, 3% of participants were under 40 years.

About their level of education, more than half (59,2%) of the participants principals had a master degree diploma in contrast to the small amount those (8,6%) with PhD diploma. From this point, it must be emphasised that the educational level positively affects the digital competence. Of course, those school leaders who obtained a PhD diploma use more frequently the digital competence in administration. The two most important keys that school leaders use more their digital competence are their spherical training in digital competence issues without their own expenses as well the equipment with technological supplies.

Stuart et al. (2009) have made a survey about the correlation between the digital competence and the aim of school leaders to have more access in further knowledge. Unfortunately, it has been proved that principals must be digital leaders themselves on the other hand a large majority of them don't feel certain with their use.

In addition, the frequency of using digital competence rather than the gender seems to be a crucial factor that affects the digital competence of leaders (Krumsvik et al., 2016).

This survey showed that a large majority of school leaders have adequate digital competence finding it necessary in the administration of school organisation. Digital competence facilitates their school leadership. From the other hand, the type of special secondary school affects the digital competence of leaders. Additionally, the self- assessment of school leaders' depends on their years' of using digital competence in administrative issues.

Yuen and Ma (2002), claim that the gender plays a crucial role in the use of ICT. In the review "Factors Affecting Teachers' Use of Information and Communications Technology: A Review of the Literature", Mumtaz (2000), Christensen and Knezek (2008), Yuen and Ma (2002), and Loveless et al. (2011) refer some demographic elements that affects the use of ICT. Cox et al. (1999) and Cuban et al. (2001) reach to the same conclusion. The research by Ferrari (2012) has driven to the same results.

In the studies by Loveless et al. (2011), Howard (2013), and Sipilä (2013), there is another conclusion that teachers have no adequate digital competence despite the challenges of our digitalised society.

Krumsvik et al. (2016) came to the conclusion that the gender is the crucial factor. In their survey it was proved that women have more digital competence compared to men. Moreover, those teachers who have educational experience more than 15 years have lower digital competence. It is reasonable that 50 years old teachers have a lower level of digital competence.

Conclusions and Implications

This survey demonstrates that the digital competence of principals is very crucial in their school leadership helping them to make faster their administrative tasks. But, from the other hand the majority of them states that they can't change their way of teaching and administrate.

The self-evaluation of digital competence can facilitate principals so as to introduce special educational models and to additionally contribute to the opening of school to society.

Afshari et al. (2012) concluded that principals find ICT helpful and important as it positively contributes to a better communication with other teachers creating a friendly atmosphere.

This study is the first one that was conducted in Greece in secondary special educational structures. Consequently, important research conclusions were drawn about the topic of digital competence of school leadership. Of course, there were some restrictions that must be taken into account in future researches.

The most crucial restriction of this survey is the inclusion in the investigation only of principals avoiding teachers of special and general secondary school units. The questionnaire was distributed online. From the methodological point of view, it would be correct to use a combination of qualitative and quantitative method.

Suggestions for Future Research

In terms of the novelty of the topic, as it has been the first one that took place in Greece as well as due to its relation to digital competence of leaders of special secondary education schools this survey is rather motivating. However, it has many limitations. For this reason, there are some suggestions for future research. Especially, it could be:

- ✓ Digital competence of teachers of these special secondary structures investigation.
- ✓ Digital competence of principals before and after the COVID- 19 examination.
- ✓ Digital competence in terms of the gender.
- ✓ Digital competence of leaders of special secondary education schools after their appropriate training.
- ✓ The investigation of teachers' opinion about the digital perception of their school leaders.

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Initial Teacher Education in the Region of Western Greece: What does the student learn from the curriculum?

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Abstract: The shift from science-based curricula to curricula based on learning outcomes has been a major change for higher education. It is a radical curriculum design model transfer for higher education. The proposed research focuses on this new model that is the most difficult point assessment between expected learning outcomes and acquired learning outcomes. The given example is the initial programme of study of a Department of Primary Teacher Education, located in the region of Western Greece (Greece). In this research students were asked to answer whether they have developed the learning outcomes. The tool used comes from the European Tuning project which is of great importance in learning. From Tuning were taken the generic and specific competencies proposed for the field "Education". The questionnaire was divided into three levels. The first one concerned the students' diagnosis of the relevance of Tuning competencies. The second concerned the recognition of their

existence within the curriculum. The third level concerned the students' self-assessment of whether they have developed these competencies. The innovation of the article lies in: a) the object itself, in other words the construction of a tool to investigate the effectiveness of student learning, b) the fact that the students were questioned on issues (learning outcomes) concerning the design of their curriculum and its effectiveness (learning). The results showed that students have a full understanding concerning the developed or not developed competencies. Consequently, students seem to be able to evaluate their learning process and its effects on them.

Keywords: Initial Teacher Education, Learning outcomes, Students, Assessment.

Introduction

In recent decades, higher education curricula have moved from the notion of treating a scientific field to constituting them on the basis of learning outcomes. This movement, although common in the European Higher Education Area (but not only in Europe), has taken place at different understandings and speeds both at national and institutional level (Bohlinger, 2007; CEDEFOP, 2010; 2016; 2017; Harris & Clayton, 2019; Patelis, 2022; Vermunt & Vermette, 2004). The adoption of the European (and national) Qualification Framework and the cumulative experience helped making a more systematic use of learning outcomes (CEDEFOP, 2017). The learning outcomes are seen as key, on the one hand, for the connection to the labour market, and thus for the greater professionalization of studies, and on the other hand, for their evaluation (Grosemans et al., 2017; Lennon 2016; Noda et al., 2020).

Regarding the evaluation, the issue is to measure the distance between the expected learning outcomes (product of the experts' construction) and the learning outcomes acquired by the graduates (final product of the learning period on the basis of a curriculum) (Emplit, 2020; Gaebel et al., 2018; Taalas & Grönlund, 2020). The difficulty of measuring the development of learning outcomes in learners and linking them, on the one hand, to teaching methods and, on the other hand, to assessment methods has proven to be great (Belland et al., 2009; Holmes, 2019; Yurdugül & Cetin, 2015). Beyond this difficulty, however, it is a common starting line of analysis: that there is someone who knows and plans and someone who does not know and will try to learn. In other words, the students are seen, at the beginning of the programme, as *tabula rasa* that, through a vehicle (curriculum), will end up forming a scientific professional identity.

But is it so? In the earlier engagement with the issue it was found, in the case of a Department of Education (education sciences + teacher education) that students have formed perceptions of the professional field they are aiming for and do not always seem willing to move from them even when the curriculum gives them relevant stimuli. However, in this engagement because it was exclusively concerned with only students of last year of studies (degree level), the impact of the curriculum was not clear since we did not know the starting point i.e. the moment of entry into the programme (Stamelos & Evangelakou, 2018a; 2018b; 2019).

On the other hand, the attempt to construct similar curricula by different groups of experts on the basis of learning outcomes demonstrated the plethora of approaches and diversity of options. Different countries have tried to address the problem with different methods. In the UK, this role is played by Subject Specific Benchmarks written by experts (Quality Assurance Agency, 2023). In France, it is more the Ministry that defines the teacher's profile and proposes learning outcomes on the basis of education axes (Ministère de l'Éducation Nationale et de la Jeunesse, 2023). The equivalent at European level has

been attempted by the flagship European Tuning programme (<http://www.unideusto.org/tuning/>). The Tuning 'Education' group proposed a list of competencies for the relevant studies, divided into general and specific ones.

Moreover, the debate on student participation in the evaluation of various institutional aspects is always a controversial one. Several questions emerge, such as: How the diversity of evaluations can be understood? What is their purpose? Why involve students in the process? The last question is of particular interest to us. Students are asked to assess the quality of teaching, but not its content. A distinction is drawn between content and teaching. However, a judgment about teaching can hide an interest or disinterest in the content taught, either for the content itself or in relation to students' expectations of such training. Despite this undeniable relationship, the evaluation of content remains something of a taboo. A taboo rooted in the traditional idea of education as an activity in which someone who knows transmits to someone who doesn't. This idea has stood the test of time, and it has its *raison d'être*, but today it is challenged, at least in part. In fact, students are adults, in full exercise of their civil rights. In the Anglo-Saxon world, educational evaluation has a long history. It is accepted that the first questionnaire was constructed by students themselves at Harvard in 1926 (Germain-Rutherford, 2003). Later, in the 1970s and 1980s, the subject of "teaching evaluation" became very popular. Today, the questionnaire (Students' Evaluation of Education Quality Questionnaire (SEEQ)) has been the most widely tested and recognized since the late '80s (Marsh, 1987). SEEQ is not the only one, other tools are also being tested, such as: a) Course Experience Questionnaire (CEQ), b) Module Experience Questionnaire (MEQ), c) Postgraduate Research Experience Questionnaire (PREQ) and d) Experiences of Teaching and Learning Questionnaire (ETLQ) (Corbalan et al, 2013). On the other hand, from the '90s onwards, interest emerged in student experience in relation to their 2d degree (Master) studies. Early attempts include the work of Bowen and Rudenstine (1992) in the USA and Becher et al. (1994) in the UK. However, a well-organized national effort appears to have emerged in Australia in 1999, entitled the Postgraduate Research Questionnaire (PREQ) and initiated by the country's Council for Education Research (ACER). PREQ is distributed to all Masters and Thesis graduates. It is developed by analyzing the results of research into the experience of Master's students, institutional evaluations, recognized good practice and feedback received from lecturers and focus groups of Master's students (Marsh et al., 2002). PREQ is structured along six axes: a) infrastructure, b) intellectual climate, c) objectives and expectations, d) tutoring system, e) defence, and f) outcomes, i.e. the skills that graduate-themselves-believe they have developed (Stamelos, 2016). Finally, in the UK, Oxford University has proposed a version of PREQ, PRES, also structured along 6 axes: a) student characteristics, b) motivations and expectations, c) perception of the educational environment, d) course framing, e) research design, and f) research outcomes (Trigwell & Dunbar-Goddet, 2005). In Greece, students are involved in both the process of evaluating their study programs and institutions and in the quality assurance of teaching. Thus, they express themselves not only on their direct experience in the classroom (teaching), but also on their overall experience in the institution. As a result, their institutionalized opinion becomes crucial, on one hand, for the external evaluation of their study programs and/or institutions, and on the other, for the professional promotion of their teachers. However, this plethora of student evaluations does not concern certain aspects of their studies, such as the content of their training - a domain supposedly reserved for specialists. Consequently, the initial question was to experiment with students' ability to evaluate the content of their training. Two questions followed: a) what framework should be used? and b) what tool should be used?

Research Problem

The introduction of learning outcomes, as a key component of student-centred learning, was seen as a major change in the way university curricula are conceived. The importance and gains from learning outcomes were highlighted through a multiple exploration of the international literature (Mahajan & Singh, 2017). However, the monitoring of the achievement of learning outcomes and the link between teaching, evaluation and learning outcomes proved to be a critical point with significant control difficulties (Hussey & Smith, 2002).

The research problem is the evaluation of the achievement of learning outcomes at the end of an educational period. The problem lies in the fact that it proves difficult to systematically and reliably test the success of the transmission of the expected learning outcomes. Essentially, the challenge is to investigate the learning process starting from the identification of learning outcomes, the structuring of the curriculum, the teaching methods and the modes of assessment, with the final outcome being the verification of the effective acquisition of learning outcomes by graduates (Oliver et al., 2008).

In this context, the main stakeholders, students/graduates, are rarely asked to give their opinion (Aziz et al., 2012). This is the focus of the research. In other words, this research questions students, at the beginning and at the end of their studies, about the importance of learning outcomes, whether they recognise in their curriculum efforts to develop learning outcomes and, finally, whether they themselves consider that they have developed learning outcomes. The innovative element of our research is the longitudinal comparison of the evolution of students' evaluation of the acquisition of learning outcomes. Indeed, we asked students at the beginning (semester 1) and at the end of their studies (semester 8) and then compared their responses (Stamelos & Evangelakou, 2018a; 2018b).

Research Focus

Based on the proposed experience to date, 1st year students were questioned (1st semester) in 2017- 2018, about competencies-Tuning. We did the same, in the spring of 2021 when the same students were in their 8th and final semester of their studies.

Research Aim and Research Questions

The aim was to discern the effect of four years of study on the competencies-Tuning. Finally, what is the effect of their curriculum on the way they view the competencies that are considered important for the formation of their scientific identity.

More specifically, the research questions were:

- a. Do students consider Tuning competencies appropriate for their field of study?
- b. Have they encountered activities in their curriculum related to these competencies?
- c. Have students developed these competencies ("The self-evaluation")?

Research Methodology

General Background – Sample/Participants/Group

The sample of the survey comprised 181 first year and 81 final year students of the Department of Education and Social Work, University of Patras. This questionnaire was distributed to the students

with an entrance academic year of 2017-2018, in their first and final (8th) semester of studies. A comparison was then made of the mean responses in the 1st and 8th semesters.

In the first semester (October 2017) the questionnaires were distributed during a compulsory course for the first year and 180 questionnaires were completed. In the final (8th) semester (May 2021) due to the pandemic and distance learning, the questionnaire was filled in electronic form during a compulsory course of the final-year and 84 questionnaires were completed. Finally, to ensure the quality of data analysis, after completeness, 180 and 81 questionnaires were kept for further analysis respectively; this imbalance could be considered as a limitation in this study. As for the gender of the participants, for the first year 32 (17.8%) of them were men and 147 (81.7%) were women, while for the final year we had 15 (18.5%) and 66 (81.5%) respectively (one of the participants did not declare gender).

Instrument and Procedures

The questionnaire consisted of the following sections:

- Sample description: gender, high school diploma grade, geographical origin, department preference order, mother' education and father's education.
- To investigate the research questions, the participating students were asked on a 5-point Likert-type scale (1 = very little 2 = Little 3 = Moderate 4 = Much, 5 = Very much) how important they consider each of the Tuning competencies, how much they have encountered and how much they have developed each of them. In more detail:

General and Specific Tuning competencies were used constructing the questionnaire; 24 items as General competencies and 28 items as Specific competencies, which are presented in detail in Tables 4 and 8. For all items students were asked to declare how important they consider it (legitimacy of Tuning competencies, from now on it will be referred to as competency importance). In the second part, students were asked whether they experienced them in their curriculum, i.e. whether they could recognise curriculum activities related to the competences in question (curriculum, from now on it will be referred to as frequency of occurrence in the curriculum). Finally, in the third part, students were asked whether they consider that they have developed each one of the competencies (self-assessment, from now on referred to as readiness to use). The content of the questionnaire bases its validity on the use of Tuning competences (general and specific), which have been widely used both in Europe and in other regions of the world (e.g. South America, Africa, etc.).

The data analysis was based on the comparison of the means between the 1st and 4th year on the individual items (24 items as Generic competencies and 28 items as Specific competencies), in terms of the three parameters examined, i.e. importance, frequency of occurrence in the curriculum, readiness to use.

A comparison of the overall means on importance, frequency of occurrence in the curriculum, and readiness to use was also made. The aim was to identify any statistically significant differences between Year 1 and Year 4. Cronbach's α respectively were calculated: on importance (0.914 for Generic competencies, 0.946 for Specific competencies), on frequency of occurrence in the curriculum (0.935 for Generic competencies, 0.954 for Specific competencies) and on readiness (0.903 for Generic competencies, 0.945 for Specific competencies) (reliability proved). After this, we investigated the

possible effects of "importance" and "frequency" on "readiness" through a regression analysis for Generic and Specific competencies.

The processing was done with IBM/SPSS V. 26 and the hypothesis test applied to the comparison was the Paired Samples T-test.

Data Analysis – Demographic data. Based on the demographic data, the vast majority of students are female (81.7% in the 1st year sample, 81.5% in the 4th year sample) with a high performance in high school (>16/20, 86.7% in the 1st year, 93.8% in the 4th year). These studies are first choice (positive choice)¹ for the students (1st choice for 51.7% and overall from 1-3 choice for 91.1% of the 1st year, 50.6% and respectively 87.6% of the 4th year. The geographical origin of the students is mainly from Western Greece (47.2% for the 1st year and 45.7% for the 4th year) and Attica (23.9% and 33.3%). In other words, the best students (who want to do these studies) from the region of the Department choose this study programme and those from Attica (Athens) do not manage to get into the corresponding Department in Athens. Finally, it is a social upward mobility programme of study to the extent that about 2 out of 3 parents have no experience in higher education (37.8%-1st year and 32.8%-4th year of mothers and 33.3%-1st year and 30.9%-4th year of fathers have higher education experience).

¹ In Greece the system of access to higher education is a combination of the results in the national examinations and the choice of each candidate on the basis of his/her preferences.

The demographics are presented only to capture the sample, providing a socio-economic frame of reference for the survey. In this paper, a further correlation of demographics with competence development is not needed, given its purpose.

Research Results

Generic Competencies

Importance. The importance that students attribute to generic competencies was investigated. A great importance was attached to the proposed competencies.

Table 1

Generic Competencies: Importance

Generic Competencies	Mean* (1-5)	Std. D.	Sig. (2-tailed)
Average mean of generic competencies for 4 th year	4.36	0.386	0.764
Average mean of generic competencies for 1 st year	4.34	0.502	

*1 = very little 2 = Little 3 = Moderate 4 = Much, 5 = Very much

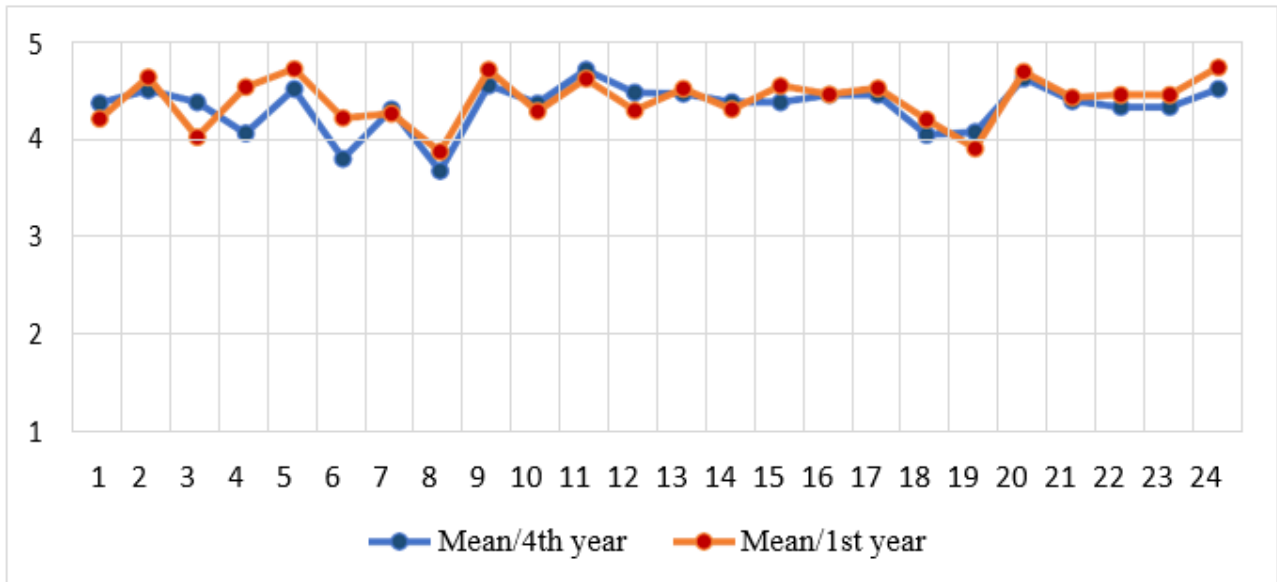
Based on the students' responses, a great importance was attached to the proposed generic competencies. In fact, the importance did not vary over the years of studies.

The importance was particularly high for all competencies, with the lowest mean in the first year in the "ability to undertake the research at an appropriate level" (3.81 mean). In the 4th year, two

competencies showed a mean below "4": a) "The ability to communicate in a second language" (3.81) and b) "the ability to undertake research at an appropriate level" (3.69).

Figure 1

Generic Competencies: Importance (Analytic)



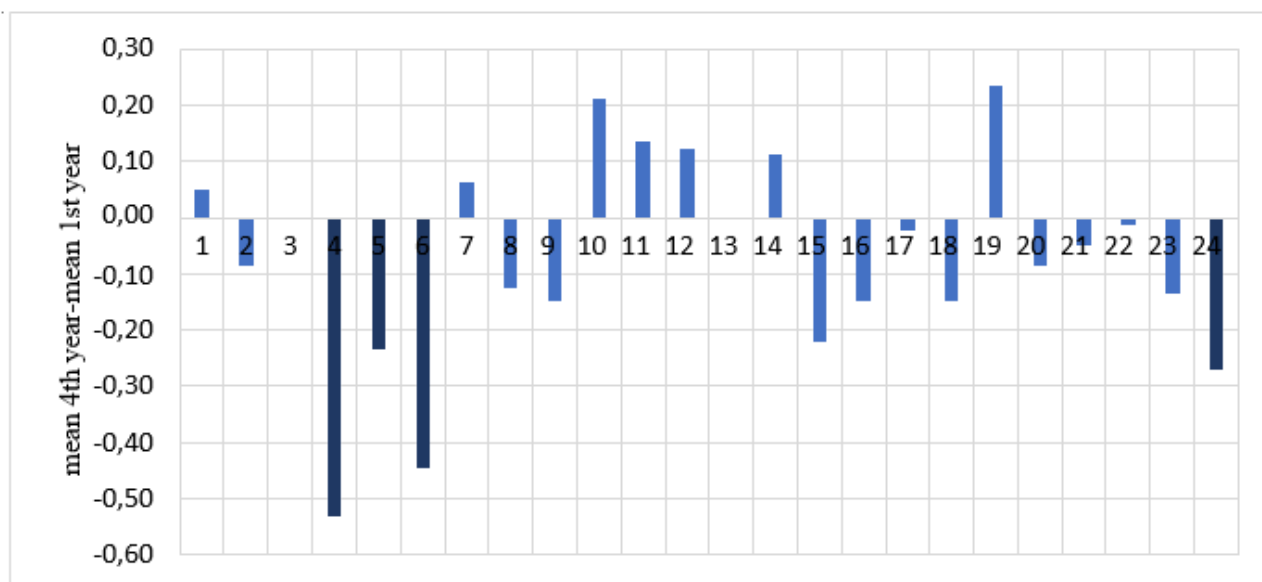
Based on the Figure 2, only four generic competencies showed a statistically significant difference in student responses (between Year 1 and Year 4). In all four cases this was a drop in mean.

These competencies were:

- 4. The knowledge and understanding of the subject area and understanding of the profession
- 5. The ability to communicate both orally and through the written word in native language
- 6. The ability to communicate in a second language
- 24. The ability to act on the basis of ethical reasoning.

Figure 2

Generic Competencies: Importance (Evolution)



In conclusion, the next information is relevant: a) the importance of generic competencies did not vary over the years of studies and b) as far as the few statistically significant differences were concerned, they had different origins:

- Competencies having the lowest importance at the beginning of studies and not changing during study (“the ability to undertake research at an appropriate level”). In other words, the curriculum did not succeed in modifying the initial perception about the limited importance of research in these studies.

- Competencies with a large decrease during the studies (“the ability to communicate in a second language” and “The ability to act on the basis of ethical reasoning”). In other words, the curriculum did not highlight the importance of the second foreign language and the ethical commitment to the requirements of the profession.

- Competencies which, progressively and with the experience, were taken for granted (obvious) (“The knowledge and understanding of the subject area and understanding of the profession” and “Ability to communicate both orally and through the written word in native language”).

Frequency. Then, the frequency with which students perceived the promotion of generic competencies by their curriculum was investigated.

Table 2

Generic Competencies: Frequency

Generic Competencies	Mean* (1-5)	Std. D.	Sig. (2-tailed)
Average mean of generic competencies for 4 th year	3.66	0.555	0.000
Average mean of generic competencies for 1 st year	3.25	0.659	

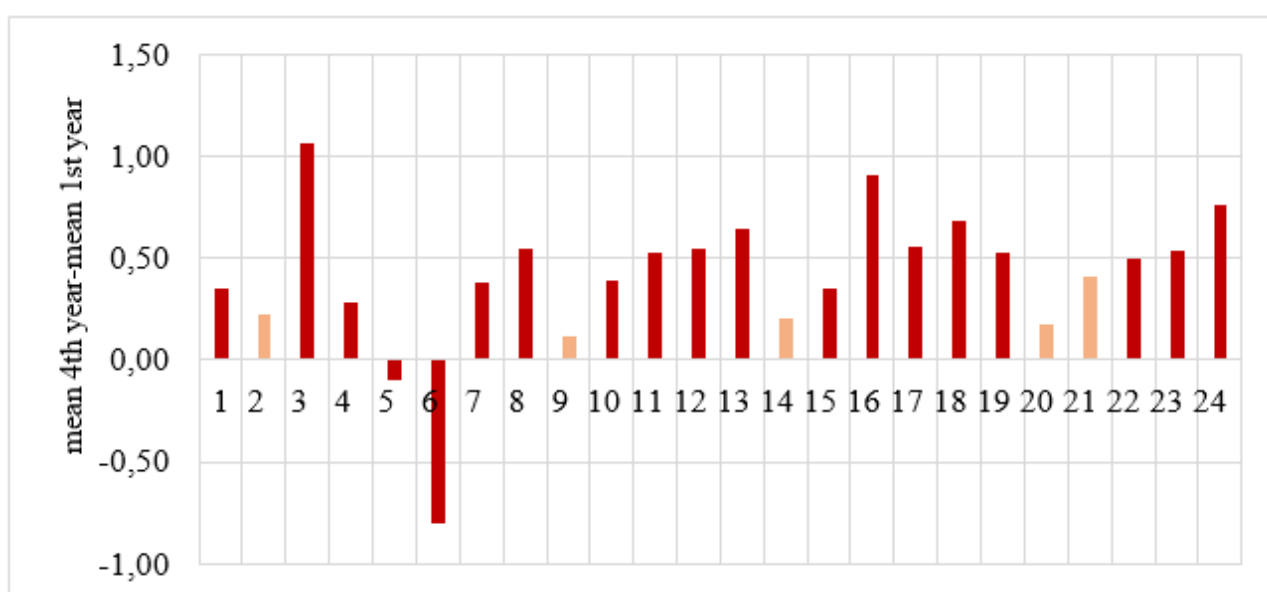
*1 = Very little 2 = Little 3 = Moderate 4 = Much, 5 = Very much

Based on the students' responses, the frequency of encountering generic competencies in the curriculum, from the 1 to the 4 year increased in a statistically significant way. It is an expected outcome. However, the mean in frequency is less than that of significance. Of course, if reserving as a limitation of the survey, the analysis highlighted a point for further investigation: it is not clear if students in year 1 responded to whether they had already encountered them in the curriculum or whether they thought they would in the future.

The figure 3 shows that frequency increases in a statistically significant way in 17 of the 24 generic competencies. In five other competences the increase is not statistically significant. In two competences the frequency decreased in a statistically significant way ("The ability to communicate both orally and through the written word in native language", "The ability to communicate in a second language").

Figure 3

Generic Competencies: Frequency (Evolution)



Readiness. The readiness (self-assessment) of the students in terms of generic competencies was investigated.

Table 3

Generic Competencies: Readiness

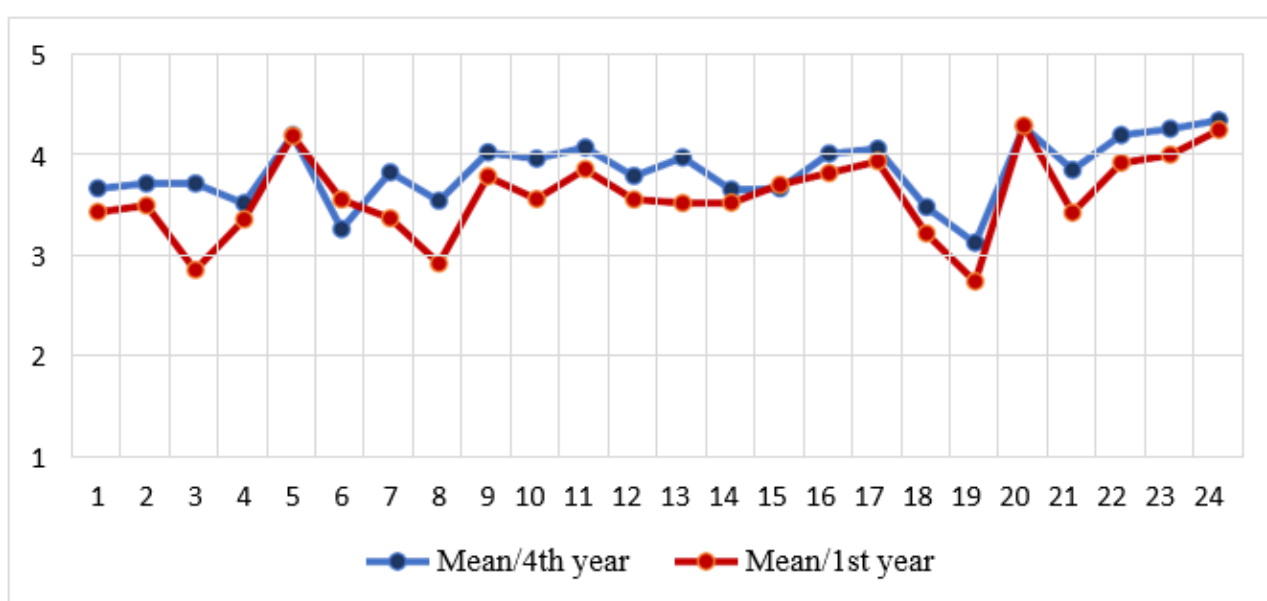
Generic Competencies	Mean* (1-5)	Std. D.	Sig. (2-tailed)
Average mean of generic competencies for 4 th year	3.84	0.452	0.000
Average mean of generic competencies for 1 st year	3.51	0.553	

Based on the students' responses, the level of readiness they perceive to have mastered from the curriculum, from the 1 to 4 year increased in a statistically significant way. However, the mean of readiness was lower than that of significance and higher than that of frequency. Of course, the limitation of the research that one point emerged during the analysis for further investigation was the importance of maturity and awareness. In other words, the 4th year responses have the added value of greater awareness of individual competencies through the influence of, on one hand, the curriculum and, on other hand, age.

Figure 4 shows in detail the means of readiness on generic competencies from year 1 and 4 year.

Figure 4

Generic Competencies: Readiness (Analytic)



Based on the next graph (Figure 5), it is visible that the means in 22 of the 24 generic competencies increased (one remained stable and one decreased). However, the increase was statistically significant in nine (9) generic competencies:

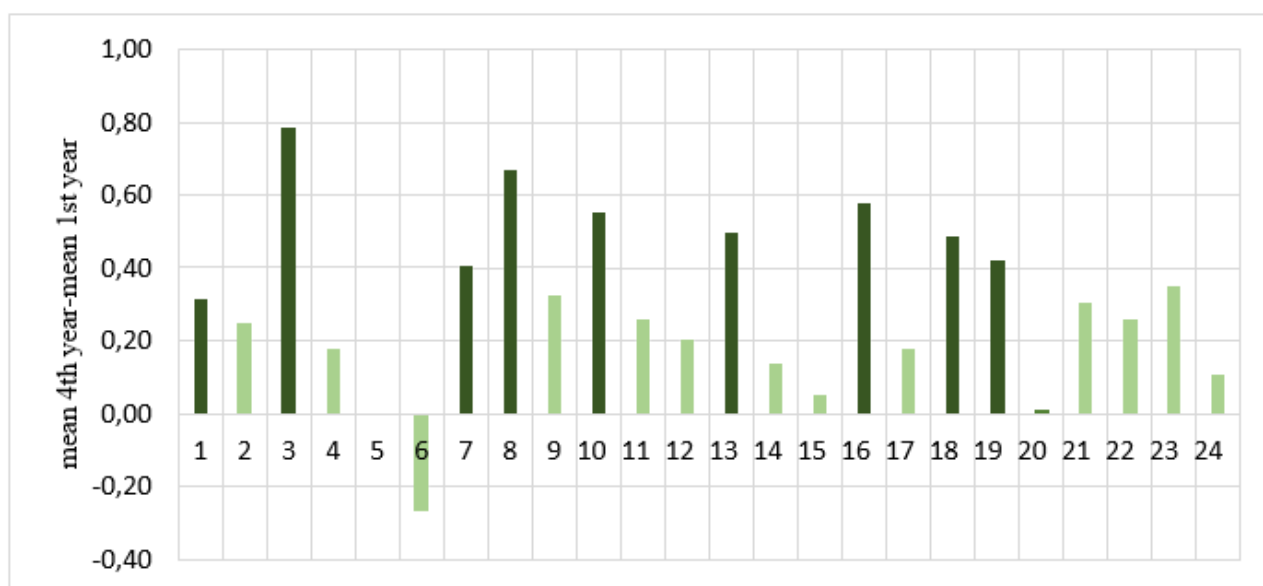
- 1. The ability for abstract thinking, analysis and synthesis
- 3. The ability to plan and manage time (for an educative activity)
- 7. Skills in the use of information and communications technologies
- 8. The ability to undertake research at an appropriate level
- 10. The ability to search for, process and analyze sources
- 13. The ability to generate new ideas (creativity)
- 16. The ability to work in a team

- 18. The ability to motivate people and move toward common goals
- 19. The ability to communicate with non-experts of one's field.

One could argue that these nine (9) generic competencies reflect the strengths of the curriculum on student learning.

Figure 5

Generic Competencies: Readiness (Evolution)



Generic Competencies: Holistic Approach

Table 4

Generic Competencies – Means 4th Year - Ranking in Terms of Readiness⁴

Generic Competencies - 4 th year		Importance		Frequency		Readiness	
	1 = very little 2 = Little 3 = Moderate 4 = Much, 5 = Very much	Mean (1-5)	Std. D.	Mean (1-5)	Std. D.	Mean (1-5)	Std. D.
24	The ability to act on the basis of ethical reasoning	4.53	0.59	3.98	0.97	4.35	0.73
20	The appreciation of and respect for diversity and multiculturalism	4.64	0.69	3.85	1.05	4.28	0.88
23	The ability to evaluate and maintain the quality of work produced	4.35	0.62	3.94	0.81	4.26	0.78

5	The ability to communicate both orally and through the written word in native language	4.53	0.59	4.11	0.95	4.20	0.77
22	The ability to work autonomously	4.35	0.62	4.17	0.70	4.20	0.69
11	The ability to be critical and self-critical	4.73	0.45	3.75	1.00	4.07	0.67
17	Interpersonal and interaction skills	4.47	0.73	4.00	0.76	4.06	0.83
9	The capacity to learn and stay up-to-date with learning	4.57	0.59	3.88	0.95	4.02	0.71
16	The ability to work in a team	4.47	0.69	4.00	0.79	4.01	0.81
13	The capacity to generate new ideas (creativity)	4.48	0.59	3.75	0.90	3.98	0.72
10	The ability to search for, process and analyse information from a variety of sources	4.38	0.62	3.85	0.85	3.96	0.68
21	The ability to work in an international context	4.41	0.75	3.26	1.22	3.85	1.06
7	Skills in the use of information and communications technologies	4.32	0.63	3.54	0.92	3.83	0.83
12	The ability to adapt to and act in new situations	4.49	0.57	3.57	0.99	3.79	0.77
2	The ability to apply knowledge in practical situations	4.52	0.57	3.57	0.99	3.72	0.79
3	The ability to plan and manage time (for a educative activity)	4.40	0.56	3.78	0.82	3.72	0.78
1	The ability for abstract thinking, analysis and synthesis	4.39	0.63	3.51	0.94	3.67	0.68
15	The ability to make reasoned decisions	4.40	0.66	3.53	1.03	3.67	0.88
14	The ability to identify, pose and resolve problems	4.40	0.65	3.48	0.94	3.65	0.73
8	The ability to undertake research at an appropriate level	3.69	0.82	3.46	0.92	3.54	0.88

4	The knowledge and understanding of the subject area and understanding of the profession	4.07	0.63	3.68	0.83	3.52	0.77
18	The ability to motivate people and move toward common goals	4.06	0.81	3.48	1.01	3.48	0.97
6	The ability to communicate in a second language	3.81	0.82	2.51	1.15	3.26	1.12
19	The ability to communicate with non-experts of one's field	4.09	0.78	2.99	1.25	3.12	1.09

More specifically, in Year 4, the nine generic competencies with a readiness average above "4", i.e. "24, 20, 23, 5, 22, 11, 17, 9, 16, were those of that also in Year 1 had readiness averages around "4". Therefore, the curriculum effect comes to reinforce competencies that students thought they had already developed (and/or considered important). Also, in four of them (5, 22, 17, 16) there were all four highest frequency means.

The readiness of these nine generic competencies was influenced by the importance and the frequency respectively, in "adequate" ($0.176 < R^2 < 0.552$) and statistically significant regression models (F-test, $p < 0.01$), with statistically significant effects (t-test, $p < 0.05$).

For these nine statements, the importance had a greater effect on generic competence readiness than the frequency, except for 5 and 22, where frequency showed the greatest effect.

Specific competencies

Importance. The importance that students attach to specific competencies was explored.

Table 5

Specific Competencies: Importance

Specific Competencies	Mean* (1-5)	Std. D.	Sig. (2-tailed)
Average mean of specific competencies for 4 th year	4.32	0.458	0.430
Average mean of specific competencies for 1 st year	4.25	0.653	

*1 = Very little 2 = Little 3 = Moderate 4 = Much, 5 = Very much

Based on the students' responses, a great importance is attached to the proposed specific competencies. In fact, the importance did not vary over the years of the studies.

Figure 6

Specific Competencies: Importance (Analytic)

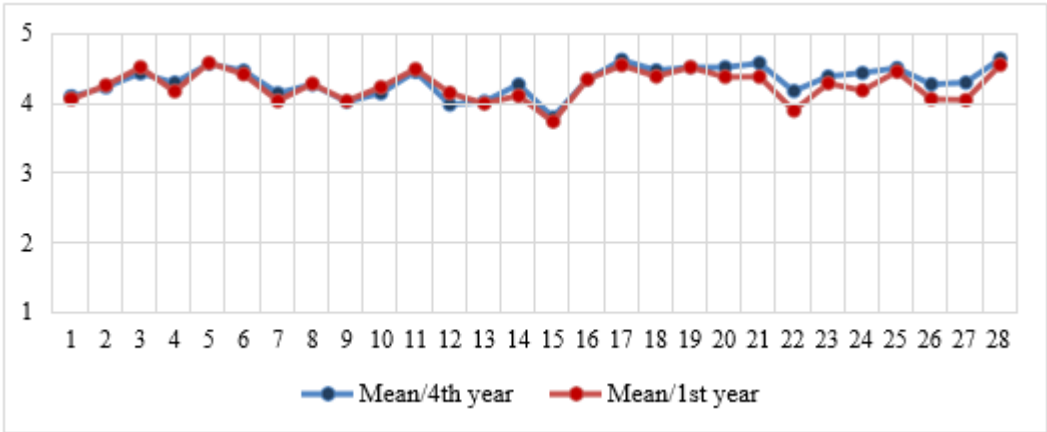
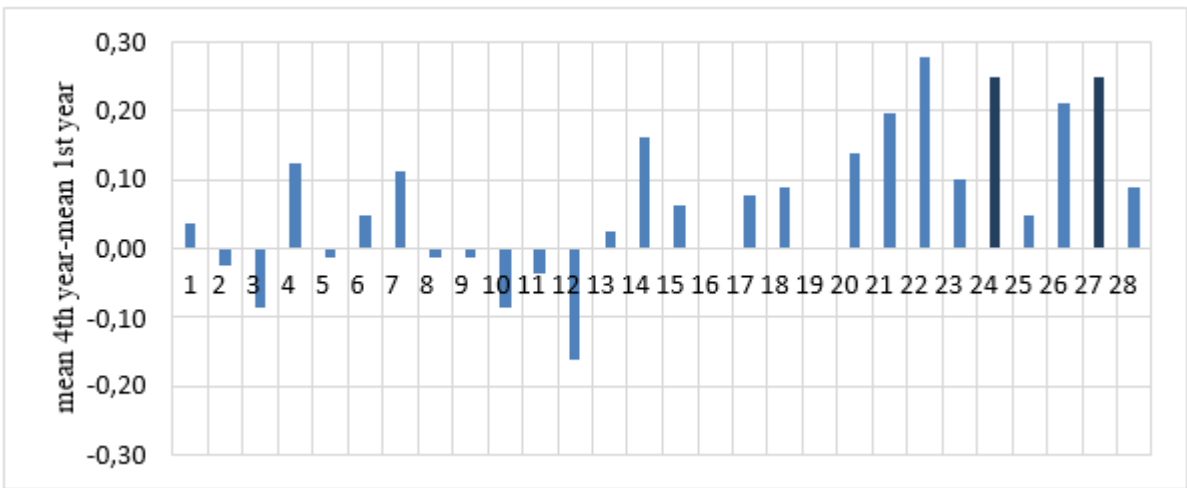


Figure 7

Specific Competencies: Importance (Evolution)



Based on figures 6 and 7, the importance in most specific competencies increased (in 18 out of 28) but only in two of them in a statistically significant way (24), “the competence in collaborative problem solving”, 27, “the ability to design and implement education which integrates people with specific needs”). In two competencies the means remained constant and in eight (8) it decreased. The decrease was not statistically significant.

Frequency. The frequency with which students perceived the promotion of specific competencies by their curriculum was investigated.

Table 6

Specific Competencies: Frequency

Specific Competencies	Mean* (1-5)	Std. D.	Sig. (2-tailed)
Average mean of specific competencies for 4 th year	3.57	0.649	0.000
Average mean of specific competencies for 1 st year	3.15	0.715	

*1 = Very little 2 = Little 3 = Moderate 4 = Much, 5 = Very much

Based on the students' responses, the frequency of encountering specific competencies in the curriculum, from 1 to 4 year, increased in a statistically significant way. This seems to be an expected outcome. However, note that the mean in frequency is less than that of importance. The limitation mentioned in the corresponding point for generic competencies applies here as well.

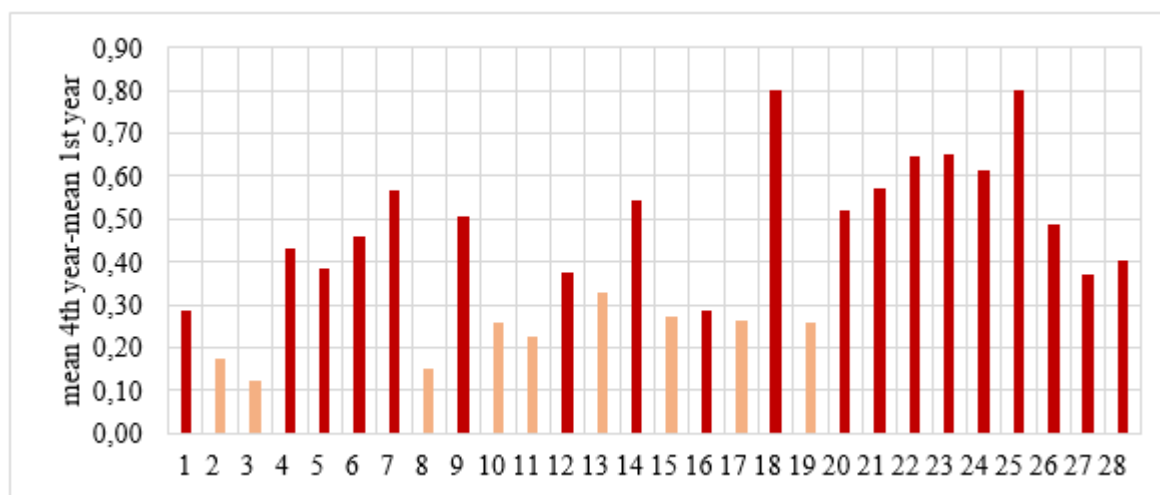
Figure 8 shows that the frequency increases in a statistically significant way in 19 out of 28 specific competencies. In the others the increase is not statistically significant. The nineteen specific competencies are:

- The ability to critically analyse educational theories and issues of policy in a systematic way
- The ability to understand and apply educational theories and methodology as a basis for general and specific teaching activities
- The ability to recognize and respond to the diversity of learners and the complexities of the learning process
- The awareness of the different contexts in which learning can take place
- The understanding of the structure and purpose of educational systems
- The ability to do appropriate research in different contexts
- The ability to manage educational programs, activities and materials
- The ability to understand processes of development and change in the community
- The awareness of the need for continuous professional development
- The knowledge of different teaching and learning strategies with a view to using them in the classroom
- The ability to communicate effectively with groups and individuals
- The ability to create a climate conducive to learning
- The ability to make use of e-learning and to integrate it into the learning environment
- The ability to improve the teaching and learning environment
- The competence in collaborative problem solving

- The ability to adjust the curriculum and educative materials to a specific educational context
- The ability to design and implement varied strategies, based on specific criteria, to evaluate learning
- The ability to auto-evaluation.

Figure 8

Specific Competencies: Frequency (Evolution)



Readiness. Following this, the readiness (self-assessment) of the students in terms of specific competencies was investigated.

Table 7

Specific Competencies: Readiness

Specific Competencies	Mean* (1-5)	Std. D.	Sig. (2-tailed)
Average mean of generic competencies for 4 th year	3.66	0.570	0.020
Average mean of generic competencies for 1 st year	3.44	0.611	

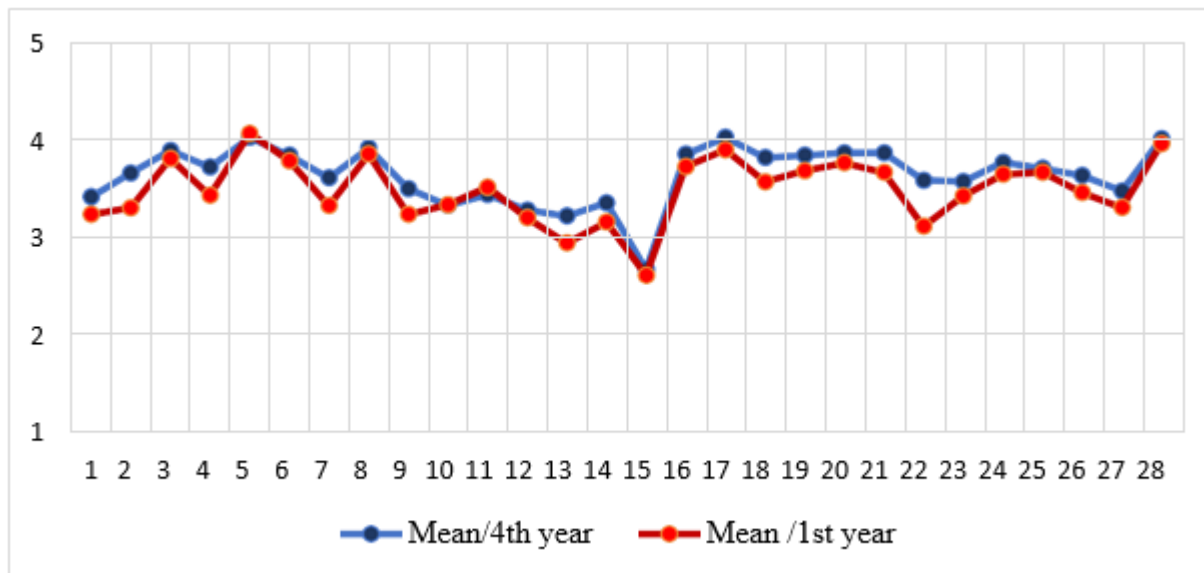
*1 = Very little 2 = Little 3 = Moderate 4 = Much, 5 = Very much

Based on the students' responses, the level of readiness they perceive to have mastered from the curriculum, from year 1 to year 4, increased in a statistically significant way. However, note that the mean of readiness is lower than that of importance and higher than that of frequency. The limitation mentioned in the corresponding point for generic competencies applies here as well.

Figure 9 shows in detail the means of readiness on the specific competencies from year 1 and year 4.

Figure 9

Specific Competencies: Readiness (Analytic)



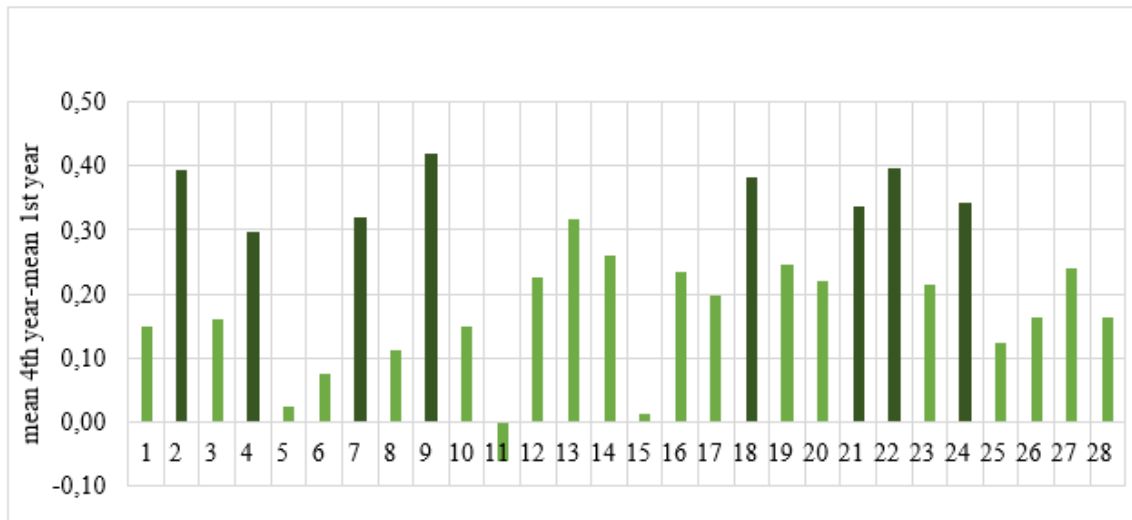
The next figure 10 shows that the means for 27 out of 28 specific competencies have increased. Eight (8) of these showed statistical significance. These are:

- 2. The ability to identify potential connections between aspects of educational theory and educational policies and contexts
- 4. The ability to understand and apply educational theories and methodology as a basis for general and specific teaching activities
- 7. The understanding of the structures and purposes of educational systems
- 9. The ability to do appropriate educational research in different contexts
- 18. The knowledge of different teaching and learning strategies with a view to using them in the classroom
- 21. The ability to create a climate conducive to learning
- 22. The ability to make use of e-learning and to integrate it into the learning environment
- 24. The competence in collaborative problem solving.

One could argue that these eight (8) specific competencies reflect the strengths of the curriculum on student learning.

Figure 10

Specific Competencies: Readiness (Evolution)



Specific competencies: A holistic approach2

Table 8

Specific competencies – Means 4th Year – Ranking in Terms of Readiness

Specific Competencies– 4 th year		Importance		Frequency		Readiness	
1 = Very little 2 = Little 3 = Moderate 4 = Much, 5 = Very much		Mean (1-5)	Std. D.	Mean (1-5)	Std. D.	Mean (1-5)	Std. D.
17	Commitment to learners' progress and achievement	4.62	0.58	3.68	0.98	4.05	0.77
5	The ability to recognize and respond to the diversity of learners and the complexities of the learning process	4.57	0.59	3.89	0.88	4.05	0.85
28	The ability to auto-evaluation	4.63	0.51	3.78	0.92	4.04	0.78
8	The awareness of the different roles of participants in the learning process	4.27	0.74	3.80	0.84	3.94	0.83
3	The ability to provide education in values, citizenship and democracy and reflect on one's own value system	4.43	0.63	3.62	0.95	3.91	0.76

20	The ability to communicate effectively with groups and individuals	4.52	0.61	3.85	0.91	3.89	0.91
21	The ability to create a climate conducive to learning	4.0	0.58	3.80	0.95	3.89	0.85
16	The awareness of the need for continuous professional development	4.35	0.73	3.49	0.94	3.88	0.87
6	The awareness of the different contexts in which learning can take place	4.47	0.63	3.83	0.86	3.86	0.77
19	The knowledge of the subject/ subjects to be taught	4.52	0.59	3.74	0.97	3.86	0.75
18	The knowledge of different teaching and learning strategies with a view to using them in the classroom	4.48	0.57	3.85	0.77	3.84	0.79
24	The competence in collaborative problem solving	4.44	0.67	3.67	0.84	3.79	0.90
4	The ability to understand and apply educational theories and methodology as a basis for general and specific teaching activities	4.30	0.64	3.67	0.92	3.74	0.83
25	The ability to adjust the curriculum and educational materials to a specific educational context	4.51	0.63	3.77	0.81	3.73	0.92
2	The ability to identify potential connections between aspects of educational theory and educational policies and contexts	4.23	0.59	3.42	0.90	3.68	0.82
26	The ability to design and implement varied strategies, based on specific criteria, to evaluate learning	4.28	0.73	3.67	0.88	3.65	0.81

7	The understanding of the structures and purposes of educational systems	4.15	0.74	3.64	0.94	3.63	0.94
22	The ability to make use of e-learning and to integrate it into the learning environment	4.17	0.74	3.52	0.92	3.60	0.87
23	The ability to improve the teaching and learning environment	4.38	0.66	3.63	0.88	3.59	0.82
9	The ability to do appropriate educational research in different contexts	4.02	0.86	3.40	1.00	3.52	0.88
27	The ability to design and implement education which integrates people with specific needs	4.30	0.64	3.43	0.92	3.49	0.84
11	The ability to consult about various educational issues and counselling skills (psychological counselling, counselling learners and parents)	4.46	0.67	3.33	1.02	3.46	0.92
1	The ability to critically analyse educational theories and issues of policy in a systematic way	4.10	0.68	3.60	0.85	3.43	0.79
14	The ability to understand processes of development and change in the community	4.27	0.69	3.37	0.86	3.37	0.91
10	The ability to manage educational/ developmental projects	4.15	0.71	3.23	1.00	3.35	1.04
12	The ability to manage educational programs, activities and materials	3.99	0.79	3.28	0.89	3.30	0.94
13	The ability to evaluate educational programs, activities and materials	4.05	0.77	3.17	0.98	3.23	0.91

15	The ability to lead or coordinate a multidisciplinary educational team	3.80	0.93	2.85	1.23	2.68	1.16
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² For the special competencies the Tuning "Education" Brochure (2009) was used with some adaptations. More specifically:

- a) from 1-11 no change.
- b) 12 was broken in the Greek questionnaire into 12 and 13 to separate the ability to use from the ability to evaluate.
- (c) 13 became 14.
- (d) 14 became 15.
- (e) 15 was not included because we believe that there is no clear differentiation with other competences that have preceded it.
- (f) 16 became 17.
- (g) 18 became 19.
- (h) 19 became 20.
- (i) 20 became 21.
- j) 21 became 22.
- (k) 22 became 23.
- (l) 23 became 25.
- m) 24 became 26.
- 25 became 27.

Finally, the competences that existed in earlier versions were added and in the Greek questionnaire they

In detail, in the 4th year, of the 11 specific competencies with a mean readiness score of around "4", 8 specific competencies also had readiness scores of around "4" in the 1st year (but in all statements the 1st year means are lower than the year 4 means), and only two ("21. The ability to create a climate conducive to learning" and "18" the knowledge of different teaching and learning strategies with a view to using them in the classroom") showed a statistically significant increase in means.

On the other hand, in the 15 specific competencies statements whose means are around 3.50, six of them (24, 4, 2, 7, 22, 9) show statistically significant increases in readiness means.

Looking at the importance, we see that all of the specific competencies means range from "much" to "very much" as they are from 4.05 to "13 the ability to evaluate educational programs, activities and Materials" up to 4.62 in "17 commitment to 'learners' progress and achievement". Exceptions are "12 the ability to manage educational programs, activities and Materials" and "15 the ability to lead or coordinate a multidisciplinary educational team" with lower means than 4.

It is noteworthy that the mean frequency ranges from 3.20 to 3.89 (moderate) for all specific competencies except "15 the ability to lead or coordinate a multidisciplinary educational team" which has a mean of 2.85.

The readiness of each specific competencies seems to be influenced by the importance and frequency respectively, in "adequate" ($0.188 < R^2 < 0.455$) and statistically significant regression models (F-test, $p \leq 0.01$), except for statement 11.

Among the 28 specific competencies, only 13 show a statistically significant effect of importance on readiness, while all effects of frequency on readiness are statistically significant effects (t-test, $p \leq 0.05$).

Also, of the 28 specific competencies in 26 statements the effect of frequency is greater than the effect of importance on readiness for 4th year students, except for "3 the ability to provide education in

values, citizenship and democracy and reflect on one's own value system" and "17 commitment to learners' progress and achievement".

Discussion

The construction of curricula grounded on competency-based learning outcomes has been a radical change in curriculum construction ideas for higher education. The consideration and the use of learning outcomes have not been convergent and diverse considerations thus applications have been proposed. The accumulated experience leads, over time, to convergence and coordination. However, the most difficult point seems to be the link between curriculum design on the basis of obtained learning outcomes and the assessment of the learning process, i.e. the monitoring of the learning outcomes. At this point, it is crucial involving students, since the learning outcomes logic operates in the context of student-centred learning.

Consequently, students should also express an opinion on the final product of their learning, i.e. the acquisition of the expected learning outcomes.

As for the first approach, the main results were based on the research questions:

1st research question: Do students consider Tuning competencies appropriate for their field of study?

Generic competencies

Students considered the importance of the generic competencies proposed by Tuning, for their studies both at the beginning and at the end of their studies. This consideration did not change during four years of study except for four of the twenty-four generic competencies and this in a negative way.

Specific competences

Students considered the specific competencies suggested by Tuning important, for their studies both at the beginning and at the end of their studies. This consideration did not change during 4 years of study except for two competencies that they consider most important.

2d research question: Have students encountered activities in their curriculum related to these competencies?

Generic competencies

- Students encountered the generic Tuning competencies during their studies, with the (partially) exception of one.

Specific competences

- Students encountered all of Tuning's specific competencies in their curriculum.

3d research question: Have students developed these competencies? ("Self-evaluation").

Generic competencies

- Students (differentially) developed the generic Tuning competencies except for one. In nine of these the development was statistically significant.

Specific competences

- Students (differentially) developed the Tuning specific competences. In eight of them the development was statistically significant.

This research complements an earlier one which focused only on last semester students. In that research (Stamelos & Evangelakou, 2018b) it was visible that students can express a credible judgment about the content of their studies under the condition that they are given a frame of reference (expected learning outcomes). However, its synchronic dimension limited the understanding of the process of acquiring learning outcomes. A longitudinal study was needed where a comparison was made between students' competences at the beginning of their studies (1st semester) and at the end (8th semester). This is the innovation of this paper and its result brings something new: students arrive at university with developed competences from their earlier studies. An element that is rarely taken into account in the design of expected learning outcomes.

Indeed, the results of this survey (which was influenced by the pandemic) initially showed information that was not often taken into account by program designers. Students do not arrive in higher education as a *tabula rasa*. Instead, they seem to come with developed competencies and - at least in the case of positive study choices - with formed perceptions and expectations. Indeed, in the case of this study, these perceptions do not seem to be significantly modified during their studies. Is this due to the strength of the perceptions or the inability of the curriculum that have a strong effect on the students who follow it? The answer to this needs further research. Nevertheless, there are already some indications. The importance seems to have a greater effect on the readiness in generic competencies. In contrast, the frequency seems to have a greater effect on specific competencies (Stamelos & Evangelakou, 2019).

As a result, the impact of the program is more specific than in generic competencies. This is perhaps due to the fact that the specific competencies are those which, as specialised, are, on the one hand, developed by the curriculum and, on the other hand, perceived by the students as something new that they did not know. In contrast, generic competencies, by their conception, may have been developed or are developed outside the curriculum, from students' prior formal and non-formal education and from student life in general. Therefore, even if they are promoted within the curriculum, they are not directly linked to it by students.

This finding has also another dimension. In several related research studies especially in the sciences and engineering (Aziz et al., 2012), what graduates and/or undergraduates report is their difficulty in meeting university knowledge to the extent that there were prior deficits. In the proposed research, which concerns teacher education, it seems that students through their school experience have already developed, mainly, some generic competencies or in any case the competencies of the specific study programme seem familiar to them and a continuation of previous school studies (e.g. the ability to live and cooperate in an intercultural environment are a developed competence to the extent that the school experience has already brought university students (former school students) into coexistence and cooperation in a multicultural group). Our research rather comes to confirm findings of other studies that show that the introduction of learning outcomes makes students' learning process more autonomous (Mahajan & Singh, 2017).

Conclusions

Based on the self-assessment (of 4th year students), the average mean for generic competencies was 3,84 and for specific competencies 3,66. Twelve (12) generic and fifteen (15) specific competencies had a mean more than the average.

Table 9

The Most Developed Competencies Between the 4th Year Students (More Than the Total Average Mean)

Generic competencies	Specific competencies
The ability to act on the basis of ethical reasoning	The commitment to learners' progress and achievement
The appreciation of and respect for diversity and multiculturality	The ability to recognize and respond to the diversity of learners and the complexities of the learning process
The ability to evaluate and maintain the quality of work produced	The ability to auto-evaluation
The ability to communicate both orally and through the written word in native language	The different roles awareness of participants in the learning process
The ability to work autonomously	The ability to provide education in values, citizenship and democracy and reflect on one's own value system
The ability to be critical and self-critical	The ability to communicate effectively with groups and individuals
Interpersonal and interaction skills	The ability to create a climate conducive to learning
The capacity to learn and stay up-to-date with learning	The awareness of the need for continuous professional development
The ability to work in a team	The awareness of the different contexts where learning can take place
The capacity to generate new ideas (creativity)	The knowledge of the subject/ subjects to be taught
The ability to search for, process and analyse information from a variety of sources	The knowledge of different teaching and learning strategies with a view to using them in the classroom

The ability to work in an international context	The competence in collaborative problem solving
	The ability to understand and apply educational theories and methodology as a basis for general and specific teaching activities
	The ability to adjust the curriculum and educational materials to a specific educational context
	The ability to identify potential connections between aspects of educational theory and educational policies and contexts

For that reason, this table also demonstrates the competencies that are most (and best) promoted by the curriculum. Could this be an indication of an evaluation for a curriculum? This needs attention. What is more certain is that student seemed to perceive which competencies are given more importance by the programme they attend, and which ones are useless? Therefore, if the programme designers would like to develop the other competencies as well, they would have to think of specific educational activities within the programme to achieve this.

Finally, it should be noted (see the research methodology) that the difference in sample size may be a limitation in reading the given results.

Suggestions for Future Research

The main prospects for future research emerge from specific findings of the presented research as well as from its initial limitations. Firstly, the repetition of the survey or other similar ones outside the circumstances of the COVID-19 pandemic is considered of great interest. It resulted to the student's absence from their normal educational environment for a long period of time and therefore probably influenced both the degree of achievement of learning outcomes and their students' perception. It would also be interesting to repeat the research in other disciplines beyond Educational Sciences and even in disciplines with different methods of education, such as clinical training, more intensive laboratory training or subjects of purely theoretical education. Besides the other disciplines it would be of research interest to reprise this research in the same discipline (Educational Sciences) but in another department or even in a different context. An additional question could be investigated with a different research design, whether students acquire the expected learning outcomes not on the basis of their own perception, but on the basis of assessment criteria of students going beyond their self-assessment. The existence of competencies related to learning outcomes in real-life contexts could be also investigated.

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Developing and Implementing a Distance Learning Model for Training Specialists of the Future

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Abstract: Modern social development requires improvement of the existing educational system, including through the implementation of innovative distance education, which has become established after the introduction of global quarantine restrictions. The purpose of the article is to propose a practically proven model of distance learning that will be useful in training the specialists of the future. Appropriate methods were used to write the article. The most important among them were the content analysis of theoretical and empirical materials, the method of generalization, and comparison. As a result of referring to the theoretical framework, a total of 27 positions of modern and relevant scientific literature were analyzed, which made it possible to provide the necessary theoretical basis for the study. The results analyze the impact of the proposed distance learning model on the educational process. The strengths and vulnerabilities of the proposed model are also identified based on empirical material. The results obtained are compared with the general trends in the organization of distance learning in the world. The conclusions note that the findings confirmed several statements about the prospects for using distance education even after the COVID-19 pandemic: the overall effectiveness of distance learning and the positive impact on students' academic achievement. The use of this learning model has led to an increase in digital competence, stimulation of students' cognitive activity, desire for independent learning, and use of digital resources.

Keywords: distance education, digital technologies, model, interaction.

Introduction

The current state of the information society creates new requirements for the training of specialists of the future. This includes the integration of digital technologies into everyday life, the improvement of existing teaching practices based on the experience gained from the global COVID-19 pandemic and related quarantine restrictions, and the widespread introduction of distance learning. In particular, due to these restrictions, it was found that distance learning has its own significant advantages, which include not only significant budget and time savings but also the ability to encourage independent learning and integrate modern technologies into the educational process. This aspect proved to be optimal in the context of the crisis and the need to take extraordinary measures. At the same time, the World Health Organization has lifted the state of emergency due to the global pandemic, so educational institutions will be able to return to traditional forms of education. However, the popularity of distance education has not disappeared - many experts still prove the existence of tangible positive effects of its implementation (Perruzzo & Allan, 2022; Rajab, 2018). Therefore, the relevance of studying this innovative form of organizing the educational process is obvious.

Research Problem

Modern transformations in education associated with the widespread use of information and communication technologies have led to the formation of new open e-learning resources, an increase in social needs in the field of personalized and adaptive learning, and the need for the widespread use of innovative technologies in the educational sector. The active use of information and communication technologies as a method of providing educational services and creating a special environment for communication is described in modern models of distance learning.

A current trend is also the use of a combination of distance and blended learning. Many educational institutions are searching for the optimal model of organizing work with students, allocating resources accordingly, and preparing the institution's staff to organize training. The capabilities of

modern learning management systems and individual systems for managing educational content, open Internet resources (including cloud services, e-libraries, etc.) are effective if many factors are implemented. In particular, we are talking about the proper training of all participants in the educational process (managers, teachers, students, administrators, etc.), proper regulatory and legal support, availability of the necessary educational and methodological base, and material and technical support.

Research Focus

The main attention in preparing the proper use of distance education should also be directed to the relevant established models. Taking this aspect into account makes it possible to clearly define the sequence of actions to be taken, which in turn opens up opportunities for the effective use of all the possibilities of distance education. Despite the active development of distance education in general, not much attention has been paid to this aspect, as the use of distance learning has generally become a private matter for teachers. Educational institutions often only regulated the use of certain platforms or electronic resources.

Research Aim and Research Questions

The purpose of the article is to propose an effective model of distance learning for training future professionals, emphasizing its relevance through the use of an appropriate theoretical framework.

Accordingly, the main research questions are:

1.Characterization of the theoretical foundations of the use of distance education

2.Study of the main models of distance learning usage

3.Development and testing of a distance learning model based on the use of modern innovative and digital technologies

Research Methodology

General Background

This study is based on a content analysis of theoretical and empirical materials collected.

Accordingly, the study was implemented in several stages:

1.At the first stage, a model of distance learning was created, and all its components were theoretically substantiated.

2.At the second stage, the model was implemented (experimental verification).

3.At the third stage, the results of using this model are characterized, the key aspects of the use of innovative digital technologies in the system of training specialists of the future are investigated.

4.At the fourth stage, the results were compared with those of other researchers.

5.In the fifth stage, conclusions are drawn and prospects for further research are characterized.

Participants

The experimental testing of the distance education model involved 50 teachers from different educational institutions. The latter had different experience in using digital technologies and distance teaching methods. Before taking the survey, the respondents agreed to participate and to process their answers.

Instruments and Data collection

In order to experimentally test the effectiveness of the distance model, a special survey was conducted among teachers using Google-forms. Using the capabilities of the Excel program, we managed to process the information received. The research materials were collected and substantiated in stages from February 10, 2023, to May 20, 2023, i.e., almost throughout the entire second semester of the academic year. In order to determine the effectiveness of the distance education model as the main means of professional development of students, a special questionnaire was developed, which consisted of open and closed questions.

The first part. Open questions:

1.How often have you used modern innovative educational technologies in organizing distance learning? (Select one answer)

- a) Continuously
- b) Several times a week
- c) Several times a month
- d) Very rarely
- e) Not at all

2.Have digital technologies led to better student performance? (Select one answer)

- a) Yes, the average score has increased significantly
- b) No, the situation has worsened on the contrary
- c) The situation with grades has not changed

3.What do you think is missing for the effective use of distance education models?

- a) The required level of digital competence (Select one or more answers)
- b) Appropriate technical conditions
- c) Motivation to use
- d) Everything suits me

4.To what extent would you assess the effectiveness of the use of digital innovative technologies in the distance education model? (Choose one answer)

- a) High level of efficiency
- b) Medium level

c) M

5.What are the main advantages of a remote model based on innovative digital technologies?
(Choose one or more answers)

- a) Attracting a large number of students
- b) Improved cooperation between students and teachers
- c) Increasing the level of motivation among students
- d) Providing access to professional learning materials
- e) Obtaining better results and level of mastery of educational material

6.Has your level of mastery of innovative educational technologies changed? (Select one answer)

- a) Yes, it has increased significantly.
- b) Yes, it has decreased
- c) No, it has not changed

The second part. Closed questions:

6.What are the main tools you used when organizing distance learning?

7.Have you encountered any difficulties with the proposed model of distance education?

8.Does the placement of e-learning materials affect the growth of interest in learning among students?

9.Do students prepare for their studies on their own based on the electronic educational materials provided?

10. Is it worth further developing distance education (based on innovative technologies and forms of education)?

Analysis of data

Based on the content analysis, it was possible to process the materials of modern researchers. At the same time, the phenomenon of using distance education in the system of training future specialists is characterized as a complex system that is constantly being improved using system analysis. The method of comparison was important for the study, based on which the obtained results were compared with the results of recent studies. Also important were the methods of generalization and typological method, which were used to qualitatively process and group the obtained materials. Also, the principles of comparativism were used to compare the strengths and weaknesses of the distance learning model and identify opportunities for improvement. It should be noted that the survey was conducted based on the following ethical criteria: anonymity, voluntary participation, absence of any discriminatory elements based on gender or age.

Theoretical Framework

A model is a system of important elements that reproduce certain aspects, relationships, and functions of the object of study. In the framework of this study, a model that is somewhat generalized and takes into account the most important factors of the learning process itself will play an important role. Modern models of distance education are based on the principle of using a variety of tools and instruments based on new information technologies and digital platforms and resources.

Since the beginning of the COVID-19 pandemic, the phenomenon of distance learning has been actively researched and implemented in practice. At the same time, in 2013, the Regulation on Distance Learning was adopted, which created the basis for the regulatory and legal aspects of the introduction of distance learning in Ukraine.

Distance education is a form of learning based on the use of modern digital and information and communication technologies that facilitate interactive communication between students and teachers, and promote the development of independent work among students.

The distance learning system includes the following components:

Tools for providing educational materials to students Tools for monitoring progress

Tools for consultation and cooperation between teachers and students Opportunities for quick communication and interaction

Tools for quickly adding new materials to courses. The structure of distance learning involves 4 subjects:

Students - those who receive educational services. Teachers - those who teach.

Administrators - those who plan educational work, create educational programs, divide students into groups and assign workloads to teachers, i.e., deal with various organizational issues.

An IT administrator is someone who facilitates the normal functioning of the learning system, solves various technical problems, and monitors the statistical work of the system itself.

The main conditions for the systematic implementation of distance learning are the formation of an educational institution's IT policy and the maintenance and updating of relevant information and educational environments. The latter should ensure the readiness of all participants in the educational process for innovative solutions, the formation of an appropriate level of digital qualifications of teachers and students, the creation of an appropriate IT infrastructure of the educational institution (we are talking about logistics, software, etc.) the creation of regulatory and legal support for distance learning, etc.

Research Results

Models of Distance Education: Types, Features of Use

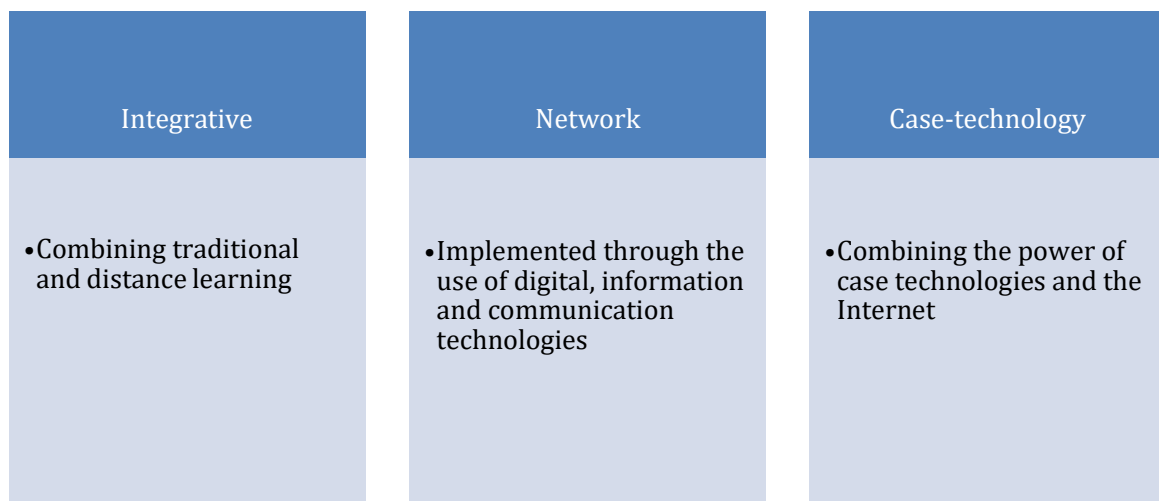
In Europe and North America, individual projects on the use of distance learning have been developed since the 2000s (Clennell et al., 2020). As a result, by the beginning of the COVID-19 pandemic, a certain methodology for working with online resources had already been formed, and ways to optimize them and general rules of use had been proposed (Rumble, 2019). Such attention to distance

education (which was then seen as exclusively auxiliary or to be used in the absence of other opportunities) made it possible to quickly integrate the latest technological solutions into learning, to use the experience gained in relation to the problems that have arisen (Santoveña-Casal & Fernández Pérez, 2020). At the same time, an appropriate regulatory framework was formed for the widespread use and implementation of distance learning in those educational institutions that, at first glance, were poorly adapted to it. For a long time, the mechanisms for its implementation remained an urgent problem (for example, taking into account the norms of teachers' teaching load, funding, and, above all, the choice of the most optimal digital platforms for creating and delivering distance learning) (Wong et al., 2021).

Contemporary researchers identify several accepted models of distance education, which are being further improved: integrative, network, case-technology, and integrative television models. While the latter is used mainly at school, integrative and network models are used in higher education institutions. The integrative model involves a synthesis of traditional and distance learning. Thus, it becomes possible to reconstruct the entire educational process: classroom lessons, seminars, and practical work are conducted in the traditional form, while those that require autonomous cognitive work and independent research are implemented in a virtual format. The network model implies that a student does not need to attend an educational institution in person. It is realized through the use of various digital and electronic technologies and forms of education. At the same time, the case-based model combines the capabilities of the Internet and case-based technologies. Cases are sent to students. The course website should indicate the time of group discussions and the form of these classes (seminar, lecture-conversation), and also provide for work in smaller teams to develop educational projects, essays, etc. (See Figure 1).

Figure 1

The Main Models of Distance Education



Source: article authors' development.

However, due to the development of digital technologies, these models have been synthesized around person-centered approaches using various digital technologies. Accordingly, using the fundamentals of these forms of distance learning, they can be implemented in different ways, introducing new models.

A Model of Distance Learning Based on the Use of Innovative Digital Technologies

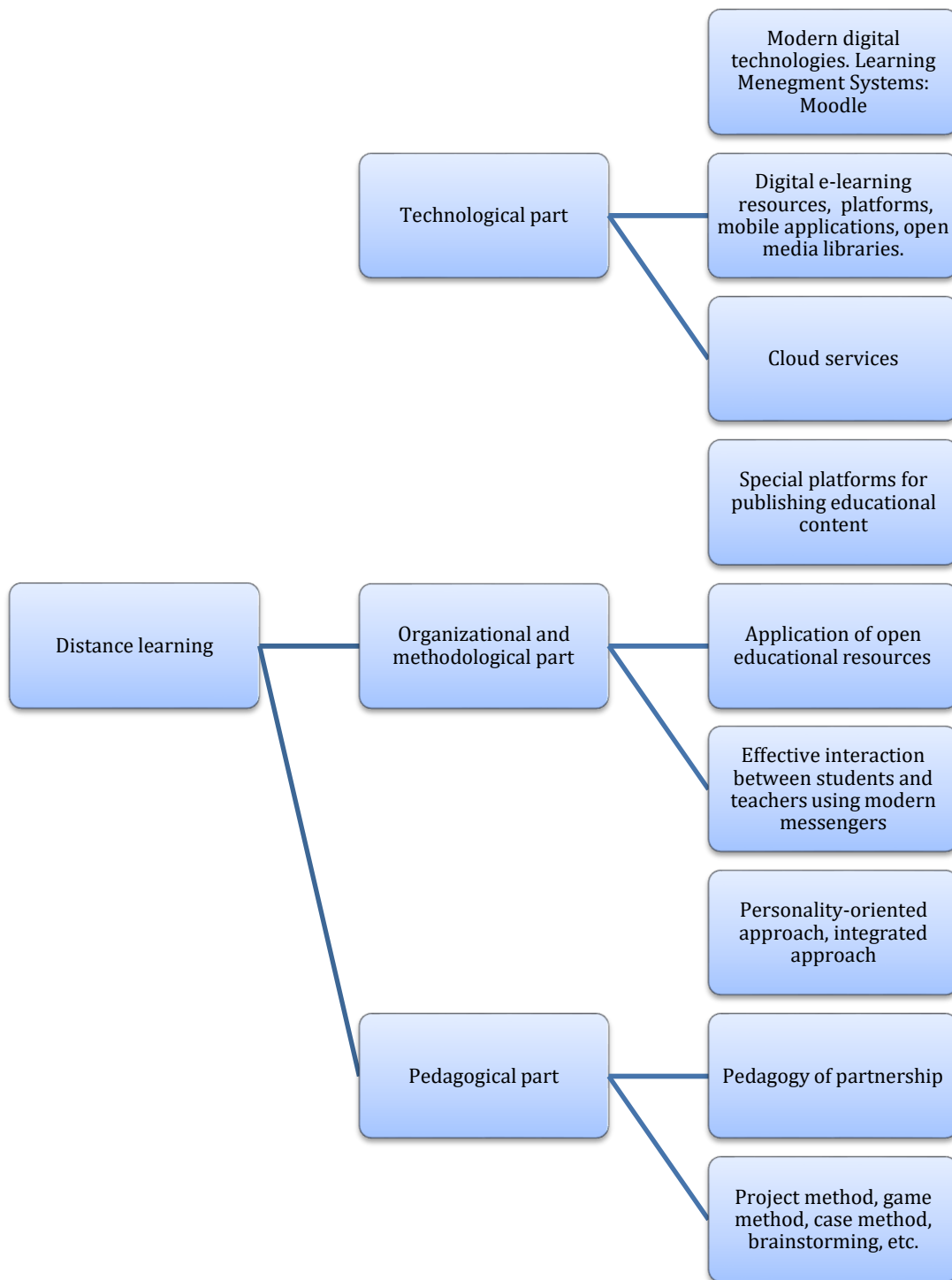
The modern model of distance learning should reflect a systematic set of synchronous and asynchronous individual and direct interactions between students and teachers, learning content, and interface. Accordingly, modern innovative and digital technologies should become the basis for training. The choice of information technologies should be based on the individual capabilities of students.

In distance learning, the content is formed in such a way that allows to maximize the use of a wide range of information and telecommunication technologies, taking into account the peculiarity of perceiving educational content in its various forms: text, sound or graphic (Williams et al., 2023). The psychophysiological and psychological-pedagogical aspects of the perception of educational information also have characteristic features: secondary to the traditional learning environment (secondary to traditional technologies of educational activities), autonomy, independence, and interactivity (Almås et al., 2021).

Given the open access of digital learning resources, they should become an additional part of the organization of classes, quality control, etc. (Spillere et al., 2018). At the same time, it is also important to use special learning relationships that will contribute to the development of practical skills in students (Hart-Davis, 2018; Reid, 2020).

Accordingly, the distance learning model should include the following parts: technological, organizational, methodological, and pedagogical. In the technological part, the use of digital electronic resources, web 3 technologies, open media libraries or digital libraries, etc. is of primary importance. At the same time, the organizational and methodological system will be responsible for the effective interaction between the participants of the educational process and educational content. The entire set of tasks defined by educational standards should be designed in the educational digital space. At the same

Figure 2

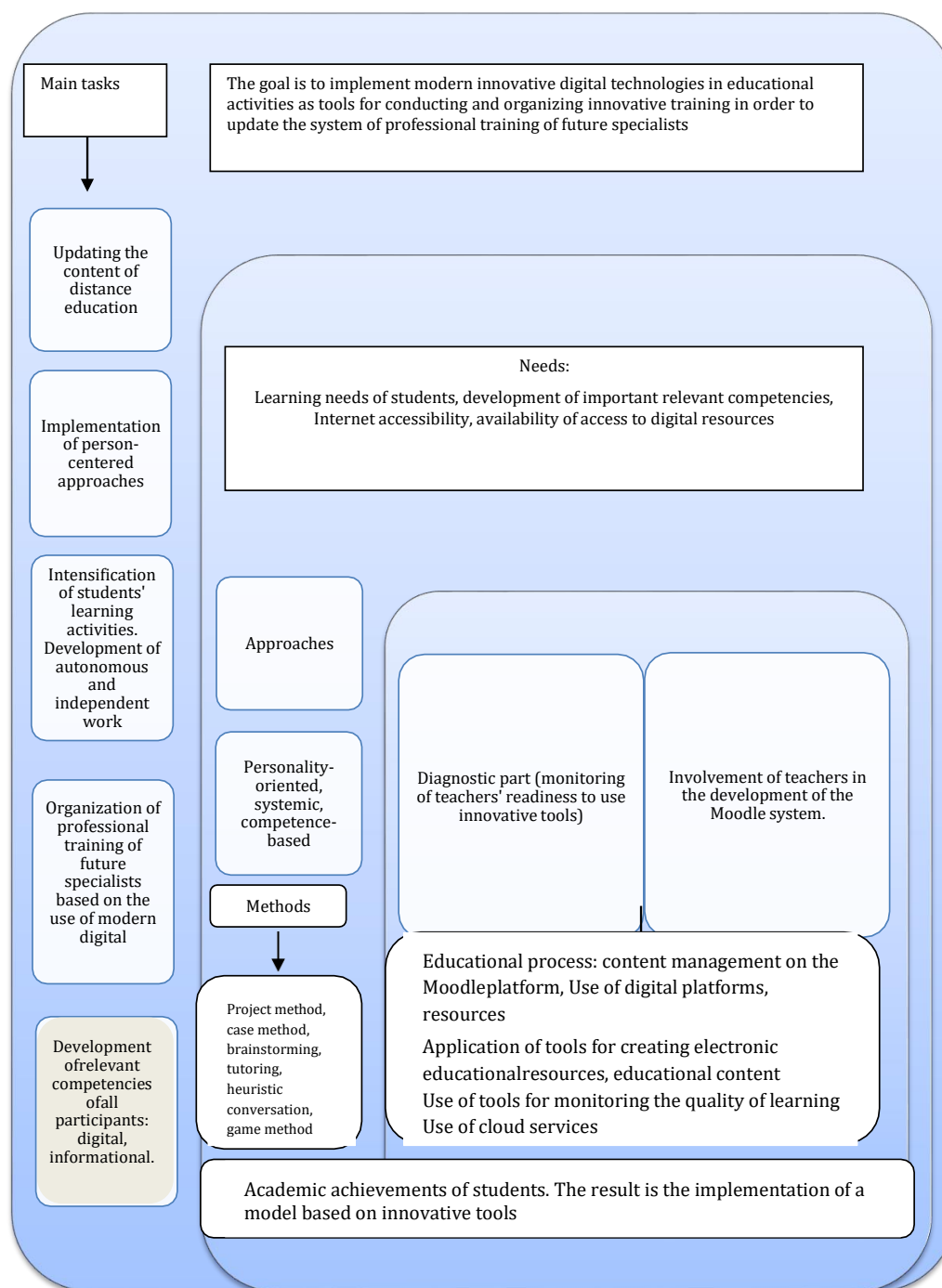


Source: article authors' development.

The purpose of this model of distance education will be to implement modern innovative digital technologies in educational activities as tools for conducting and organizing innovative training in order to update the system of professional training of future specialists (See Figure 3).

Figure 3

The Structure of Using the Distance Learning Model



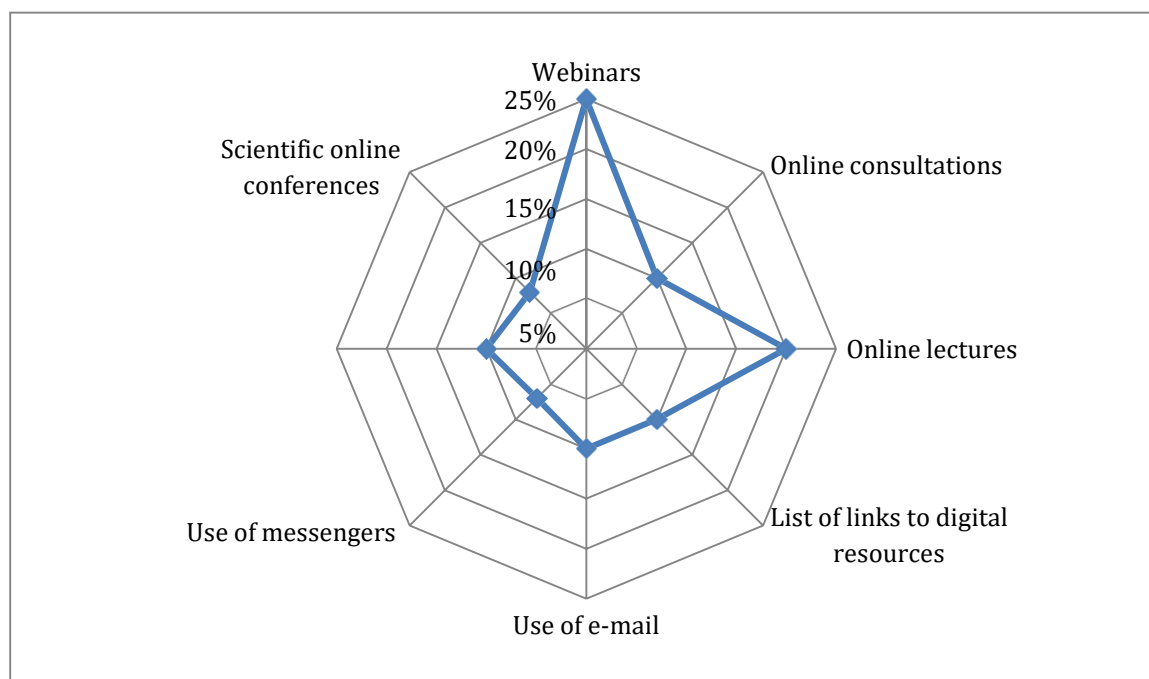
Source: article authors' development.

To implement the model described above, an educational institution needs to choose a special distance platform for conducting educational and research activities, learning how to form and create e- resources (e-courses, e-portfolios, e-digests, etc.), training on how to work with the platform (registration of all participants, effective use of all platform features).

This model can also be implemented with the involvement of the resources of the administration of the educational institution to establish sustainable distance learning, the availability of at least several specialists who are able to take on the organization, advisory activities, and control functions in the educational process with the use of learning management systems and content management systems. The main emphasis is on the use of digital tools in the pedagogical, organizational, and methodological part. (See Figure 4).

Figure 4

Structure of the Use of Digital Tools in Distance Learning (Based on the Distance Learning Model)



Source: article authors' development.

As a result of the COVID-19 pandemic, many administrators have turned to existing cloud environments and digital platforms in times of crisis and uncertainty (Nichols, 2020). It is worth highlighting the capabilities of the Moodle platform. As a result of its practical use, tangible advantages have been identified:

- opportunities for teachers to quickly master digital tools;
- variability in the introduction of distance learning tools (from tests and surveys to consultations and full-fledged courses);
- protection of resources from possible digital and cyber threats, the confidentiality of private information;
- ease of use for students.

The technology for implementing distance learning was tested, and it was found that all resources should be openly available. In particular, the openness of an educational institution's website should become a tangible mechanism for organizing cooperation between teachers and students, coordinating

their joint actions, and exercising control over the organization of the educational process. Possible ways of communication may include messengers, e-mail, online platforms, webinars, etc. The best method of communication with students should be selected based on individual experience and specific circumstances of application (Baber, 2020). The results of using the distance learning model, according to the digital toolkit, are shown in the table (See Table 1).

Table 1

Channels of Cooperation with Students (According to a Survey of Teachers).

Digital tool	Number of votes	Popularity (in %)
Messengers	7	14
Email	7	14
Online platforms	30	60
Webinars or online lectures	5	10
Other	1	2

Source: authors' development.

Table 2

How Often Have You Used Modern Innovative Educational Technologies in Organizing Distance Learning?

Answer	Number of votes	Popularity (in %)
Continuously	20	40
Several times a week	15	30
Several times a month	9	18
Very rarely	6	12
Not at all	0	0

Source: authors' development.

Table 3

Have Digital Technologies Led to Better Student Results?

Answer	Number of votes	Popularity (in %)
Yes, the average score has increased significantly	30	60
No, the situation has worsened on the contrary	5	10
The situation with grades has not changed	15	30

Source: authors' development.

Table 4

What do You Think is Missing for the Effective Use of Distance Education Models?

Answer	Number of votes	Popularity (in %)
The required level of digital competence	12	24
Relevant technical conditions	23	46
Motivation to use	11	22
I am satisfied with everything	4	8

Source: author' development.

Table 5

How Would You Assess the Effectiveness of Using Digital Innovative Technologies in the Distance Education Model?

Answer	Number of votes	Popularity (in %)
High level of efficiency	31	62
Medium level	15	30
Low level	4	8

Source: authors' development.

Table 6

What Are the Main Advantages of a Remote Model Based on Innovative Digital Technologies?

Answer	Number of votes	Popularity (in %)
Attracting a large number of students	13	26
Improved cooperation between students and teachers	12	24
Increasing the level of motivation among students	10	20
Providing access to professional learning materials	9	18
Obtaining better results and the level of mastering the educational material	6	12

Source: authors' development.

Table 7

Has Your Level of Mastery of Innovative Educational Technologies Changed?

Answer	Number of votes	Popularity (in %)
Yes, it has increased significantly	40	80
Yes, it has decreased	5	10
No, it has not changed	5	10

Source: authors' development.

Table 8

Have You Encountered Any Difficulties with the Proposed Model of Distance Education?

Answer	Number of votes	Popularity (in %)
Yes	21	42
No	29	58

Source: authors' development.

Table 9

Does the Placement of e-Learning Materials Affect the Growth of Interest in Learning Among Students?

Answer	Number of votes	Popularity (in %)
Yes	30	60
No	20	40

Source: authors' development.

Table 10

Do Students Prepare for Their Studies on Their own Based on the Electronical Materials Education Provided?

Answer	Number of votes	Popularity (in %)
Yes	33	66
No	17	34

Source: authors' development.

Table 11

Is it Worth Further Developing Distance Education (Based on Innovative Technologies and Forms of Education)?

Answer	Number of votes	Popularity (in %)
Yes	45	90
No	5	10

Source: authors' development.

Thus, based on the survey, it is possible to reflect the results of applying the proposed model of distance learning in practice. In particular, teachers most often use separate online platforms to organize distance learning (60%). The tested model focuses on the Moodle service and its capabilities. At the same time, the survey did not elaborate on this - it did not establish whether teachers actually use this resource or any other resource they are used to. The popularity of distance technologies, in general, has led to the fact that even after the introduction of the blended learning system, most teachers turn to the practice of using distance technologies (40% of respondents use them constantly and another 30% use them quite often). This interest in distance technologies probably indicates that even after the COVID-19 pandemic, this innovative system will not disappear from use in pedagogy.

Among the respondents, 60% noted an increase in the level of grades among students. for this reason, 62% of respondents highly appreciated the effectiveness of distance learning. However, there is no consensus on the specific advantages of distance education. We also note that the availability of e-learning materials influences the growth of interest in learning among students (60%).

For the further successful implementation of the distance learning model, the surveyed teachers lacked technical conditions (46%), which is a tribute to the Ukrainian educational realities. On the other hand, the majority of respondents did not experience any serious problems while working with the model (58%). This can be partly explained by the development of teachers' digital competencies (80% of respondents noted this) and the desire of students to learn based on digital materials (60% and another 66% noted that students are actively studying on their own). The overall result of the study shows that 90% of the surveyed teachers are ready to continue using the distance education model and are generally interested in further improving distance education based on innovative (integrative) teaching tools and technologies.

Discussion

An important part of the distance is the direct support of educational institutions. Those educational institutions that have longer administrative support are more likely to develop a well-managed and sustainable distance learning program (Cobo & Rivas, 2023). In the current literature, there are various business forms of implementing distance learning based on distance courses. Such practices are especially common in Europe and America. They serve as an important experience for the Ukrainian distance education system. In particular, Standiford (2015, p. 558) noted that at the University of Oregon, 80% of OSU's online learning is returned to the department offering the program. This figure is much higher than the income from typical lecture and laboratory courses (Parsons et al., 2022). It is important that the money is returned to the teacher, which encourages him or her to teach online.

When implementing a distance education model, it is clear that there is an important need for faculty to have the freedom to be creative in developing innovative courses. At the same time, excessive planning and certain bureaucratic mechanisms can be serious obstacles for modern teachers (Conte et al., 2019). Nichols (2020) noted that a well-established digital model of distance education that includes the systematic application of data analysis may even give distance learning an advantage over traditional.

To implement a successful distance education model, it is important to maintain proper digital communication between students and teachers (Nimante et al., 2022; Zhao, 2022). Thus, the teaching staff can establish personal relationships with students taking e-learning courses, allowing students to ask clarifying questions at any time of the day (Cavalcanti et al., 2021). This practice is actively used in Finland and Sweden, which are leading countries in terms of education quality (Andersone, 2020; Khan & Vuopala, 2019). Although it may not be feasible for teachers to respond at any time of the day, it is important that learners receive regular feedback to personalize their e-learning experience (Pinheiro & Santos, 2022).

Nimante et al. (2022, p. 213) note that learning environments with the help of innovative educational technologies are designed to engage students with diverse backgrounds and learning needs in quality learning, creating a high level of engagement. Wong et al. (2021, p. 221) believe that current globalization challenges have influenced educational institutions to adopt a variety of innovative technologies that relate to both teaching and certain organizational processes. These statements

correlate with the obtained indicators, which show that modern teachers use a wide range of digital technologies, which in turn affect the formation of a specific digital learning environment. As demonstrated in the results, the most common tools for distance education are digital platforms, resources, cloud services, etc. At the same time, modern research emphasizes the effectiveness of digital platforms as a means of developing professionals of the future (Hart-Davis, 2018; Senthilvinayagam et al., 2020).

Researchers emphasize the growing interest of students in independent learning after the introduction of global quarantine restrictions (Prullage, 2019; White et al., 2023). As demonstrated in the study results, this trend is also noted by teachers. The widespread use of digital technologies has led to an overall increase in digital competencies, which is also in line with general European and global practice. However, there is no consensus on the specific advantages of distance education. All of the above circumstances were noted, which suggests that the proposed model of distance education is quite comprehensive and includes many positive aspects emphasized by other researchers (Alizade, 2019). Obviously, the results of the study also confirm the thesis that even in post-covid times, teachers will not abandon the use of distance education or its elements (Lazinski et al., 2021). The problematic elements of the study were the lack of specifics, in particular regarding the most popular platforms for distance education. The model emphasizes the use of Moodle, but it was not possible to track the use of other platforms.

Conclusions

Thus, modern information technologies contribute to the formation of real opportunities for differentiating learning, focusing on the personal abilities of each participant in the learning process. Accordingly, distance education and its individual elements are actively used and improved all over the world.

The article proposes a model for organizing distance learning, which has been tested in practical use. The content of the training is structured in such a way as to maximize the use of information and digital technologies, taking into account the specifics of the perception of educational material in its various manifestations. The data obtained confirmed a number of statements about the continued use of distance education even after the COVID-19 pandemic, the overall effectiveness of distance education, and the increase in students' grades. The use of the distance learning model has led to an overall increase in digital competence, intensified students' cognitive activity, desire for self-education, and use of digital resources. Due to this, teachers highly appreciated the effectiveness of the proposed distance learning model.

Suggestions for Future Research

In general, it is noted that teachers use a wide range of online tools to organize the educational process, but the problem of using digital platforms for distance learning in the proposed model requires further research. At the same time, further research is needed to study the key opportunities for the use of blended learning in educational institutions with the specification of tools that implement it in practice and the design of a nationwide information and educational digital space. It could qualitatively integrate the information and learning environments of educational institutions with experience and digital educational resources. Obviously, the turn to distance education involves mastering new technologies, which requires new levels of digital competence. Further improvement of the developed model would involve the development and optimization of new digital practical skills and abilities, their harmonization with modern advanced educational technologies.

A separate important problem for further research is the development and implementation of distance education models based on other remote educational platforms (particularly, based on Zoom, Microsoft Teams, Google Classroom, etc). Accordingly, the issue of comparing the effectiveness of the developed models will become relevant and important for further pedagogical researches. These studies will enrich the modern pedagogical science as a whole.

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Social Networks Addictions and Academic Performance of Students at the University of Kinshasa

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Abstract: This study is part of the policy of preventing addictive behaviors in the academic environment in order to ensure the integral well-being of students. Its aim was to relate social network addiction to the academic performance of students at the University of Kinshasa. To this end, a social network addiction test was administered to a sample of 91 graduate students from several faculties at the University of Kinshasa. This test was coupled with a documentary technique that provided us with the students' academic performance at the end of the 2020-2021 academic year. The social network addiction test divided the sample into two groups: (1) social network addicts (23 subjects or 25.3%)

and (2) social network non-addicts (68 subjects or 74.7%). In terms of academic performance, three student profiles emerged: (1) 57 students or 62.6% of subjects demonstrated average quality achievement (60-69%); (2) 30 students or 33% of subjects demonstrated low quality achievement (50-59%), (3) 4 students or 4.4% of subjects demonstrated higher quality achievement. Comparing the academic grades of subjects addicted to social networking with those of non-addicts, a statistically significant difference was found. The non-addicts performed better academically than the addicts. Thus, we can conclude that addiction to social networks negatively affects the performance of understudy students. These results can serve as a basis for raising students' awareness of the dangers of abusing social networks. They can help in any attempts to regulate the use of telephones in the academic environment. Last but not least, they can be used as a frame of reference for the University's policy on addiction prevention.

Keywords: addiction to social networks, academic performance, students, University of Kinshasa, addiction.

Introduction

These days, information and communication technologies (ICT) are an integral part of people's daily activities. No sector of national life can survive without recourse to ICT. It's against this backdrop that a number of strategies for integrating ICT are being put in place in different professional fields (teleworking, telemedicine, tele-science, tele-health and e-health, online or distance learning...). Indeed, according to several researchers quoted by Bofula Lobebe et al. (2023), ICTs facilitate the performance of certain tasks and contribute to improving the quality of human life.

For this reason, their use is seen as one of the means enabling every human being to enjoy and exercise his or her right to information and freedom of expression, as enshrined in the Universal Declaration of Human Rights (1948). All areas of national life are thus positively affected by the use of ICT. In the field of education, the contribution of ICT is illustrated in particular by the arrival of online or distance learning, which is one of the variants of computer-assisted teaching (Bullat-Koelliker, 2003).

With this type of teaching, the contribution of ICT to education can be summed up in three aspects: (1) training and learning object (computer knowledge), (2) learning tool and channel, and (3) learning support (Bofula Lobebe et al., 2023).

In this integration of ICTs in the education sector, several means are used by both teachers and learners. These include computers, tablets and telephones. Of these three, the telephone is the most widely used by both teachers and learners in African universities (Bofula Lobebe et al., 2023; Ngnoulaye & Gervais, 2015). Its use in the academic environment is the subject of several studies because of its effects on learner adaptation. In fact, several studies (Baron & Bruillard, 2006; Fotsing et al., 2017; Gueudet et al., 2008; Puimatto, 2014) have shown that the issue of smartphone use is central to the problem of integrating ICT into the school or academic environment.

Moreover, the smart phone (through its functionalities, including the Internet) is one of the essential and indispensable tools of the University of the Future. This position is justified not only by the fact that it will be increasingly present, but also by the fact that its uses can have a considerable impact on students' lives. On this subject, the Agence de la Transition Ecologique Française cited by Bofula Lobebe et al. (2023) asserts that in future universities, we would witness two digital-related

phenomena: (1) an increase in the amount of time allocated in a day to the use of digital tools by students, in time slots that did not previously incorporate this type of usage. (2) The parallelization of tasks associated with digital use, which enables students to multiply the use of equipment and applications in the same time slot.

Research Problem

In the Democratic Republic of Congo (DRC), as in many countries around the world, students' use of their phones is not limited to academic activities, but extends to distracting Internet-related activities. These activities, generally linked to social networks, seem to capture learners' attention to the detriment of educational activities. In this respect, the study by Bofula Lobebe et al. (2023) and that by Mupoyi Nlandu (2020) revealed that more than half of students at the University of Kinshasa preferentially used their phones for distracting activities via social networks.

They are," the authors continue, "connected to their phones and exchanging with their friends via social networks wherever and whenever they want. Some take the liberty of logging on to Whatsapp, Facebook and telegram in auditoriums, even while teaching. When these behaviors become very recurrent, they can lead to addictions that can even disrupt students' academic lives.

Research investigating cell phone use and academic performance is limited and methods vary substantially from study to study. Nevertheless, results suggest a relationship exists. Jacobsen and Forste (2011) identified a negative relationship between the use of a variety of electronic media including cell phones and academic performance (self-reported GPA) among first year university students in the United States. Using data collected from a sample of Taiwanese adolescents, Yen et al. (2009) found an association between cell phone use (calling and texting) and participants' self-assessment of whether or not they had allowed cell phone use to interfere with "important social, academic, or recreational activities" during the previous year. Hong et al. (2012) found daily cell phone use (calling and texting) to be correlated with a self-reported measure of academic difficulty among a sample of female, Taiwanese university students. Finally, Sánchez-Martínez and Otero (2009), using a sample of Spanish high school students, found a relationship between "intensive" cell phone use and school failure. School failure was operationalized as having repeated the previous year's grade level or failing four or more courses during the previous academic year. Although these studies utilized a variety of self-reported measures, academic performance was consistently and negatively associated with cell phone use.

Several researchers have pointed to multi-tasking as an explanation for the negative relationship identified between cell phone use and academic performance (Jacobsen & Forste, 2011; Junco & Cotton, 2011; Junco & Cotton, 2012). Jacobsen and Forste (2011) reported that over two-thirds of the university students in their study used electronic media (including cell phones) while in class, studying, or doing homework. Likewise, Sánchez-Martínez and Otero (2009) found that although cell phone use was typically prohibited in the classroom, half of the students in their sample reported bringing the device to school and keeping it on during class. In two studies specifically targeting multi-tasking and academic performance, Junco and Cotton examined large samples of college students and found that sending text messages and checking Facebook while studying or doing homework was common behavior.

Furthermore, this behavior interfered with schoolwork and was negatively related to overall college GPA. Wood et al. (2012) measured the influence of multitasking with an array of digital technologies (texting, e-mail, Facebook, MSN messaging) on real-time learning. Participants were randomly assigned to various conditions (multi-tasking with one of the four technologies or no

multitasking) while participating in classroom learning activities. After the learning activities were complete, a 15-item multiple choice test was used to assess learning. Results showed that multi-tasking with any of the technologies examined had a negative impact on learning. Finally, Rosen et al. (2013) observed the study behaviors of a sample of middle school, high school, and university students and found participants typically became distracted by media such as Facebook and texting in less than 6 min after initiating a studying session.

In the DRC, studies assessing students' addiction to social networks and its effects on their academic lives are very rare. Although rare in the DRC, such studies have been carried out all over the world and attest to the presence of social networking addictions. In this regard, Haddouk et al. (2019) attest that problematic Internet use (equivalent to Internet addiction) is common among university students in Canada. In Tunisia, Messedi et al. (2018) revealed a high prevalence of addiction to the Facebook social network among medical students.

In Madagascar, Razafilisy et al. (2020) found that more than half of Madagascar's high school students were problematic users of the Internet, with damaging consequences for their health. What's more, this addiction was having a detrimental effect on their academic performance.

In the DRC, the scarcity of studies evaluating network addiction among students is due to the difficulty of assessing addiction to social networks because of the non-adaptation of tests evaluating it. For this reason, researchers have, in most cases, confined themselves to relating the use of social networks to academic performance on the basis of students' opinions (Bofula Lobebe et al., 2023; Galekwa, 2010).

Among the few Congolese studies to have assessed social network addiction among students in the DRC, we can cite the study by Mupoyi Nlandu (2020), which set out to assess the effect of the coronavirus pandemic on social network addiction among students at the University of Kinshasa. This study had the merit of having laid the foundations for the validation of the French version of Young's test (Young, 1998) in the context of Congolese university education. The present study therefore sets out to make up for this lack of information by assessing the effects of social network addiction on the academic career of students at the University of Kinshasa.

Research Aim and Research Questions

The objective of this study is to assess the nature of the effect of addiction to social networks on the academic performance of students at the University of Kinshasa. This general objective gave rise to three specific objectives : (1) to assess addiction to social networks among students at the University of Kinshasa ; (2) assess the academic performance of students at the University of Kinshasa and (3) evaluate the effect socio-demographic variables on addiction to social networks and the academic performance of the subjects surveyed.

Research Methodology

General Background

To carry out this study, we used the survey method supported by the Social Network Addictions Assessment Test and the documentary technique. The documentary technique was used to obtain students' academic performance at the end of the 2020-2021 academic year.

Sample / Participants / Group

The study focused on the population of finalist graduate students from six faculties of the University of Kinshasa enrolled for the 2020-2021 academic year, with a total enrolment of 2,101 subjects: 298 from the Faculty of Medicine, 210 from the Faculty of Psychology and Educational Sciences, 391 from the Faculty of Economics and Management, 338 from the Faculty of Law, 276 from the Faculty of Petroleum and 588 from the Faculty of Science. To determine our sample size and ensure its representativeness, we used the Krejcie and Morgan (1970) table. According to this table, for a population of 2101, we need to draw a sample of 327 subjects. Our initial concern was to have a sample of 327 subjects, but several constraints led us to settle for a sample of 91 subjects.

The first of these constraints was the refusal of several subjects to take part in our survey, due to a number of academic commitments they had. Secondly, to obtain the academic marks, the subjects were obliged to accept that we break the anonymity of the test in order to obtain the complete identities that would enable us to consult the points lists. Several subjects refused to give in to this demand, despite all the assurances we gave them about the confidentiality of their personal data. Thus, in line with ethical principles requiring respect for subjects' consent to participate in the study, we were forced to make do with a limitedly representative sample of 91 students (Corbière & Larivière, 2014; Hugonot-Diener et al., 2008). This sample varies according to the following socio-demographic characteristics: (1) faculty, (2) gender, (3) age group and (4) place of residence.

In terms of faculty, we find 19 subjects from the Faculty of Human Medicine, 20 from Psychology and Educational Sciences, 18 from Economics and Management, 12 from Law, 10 from Oil and Gas as well as 12 from Science. In terms of gender, our sample comprised 55 males and 36 females. In terms of age, there were 58 subjects aged 20-24 and 33 aged 25 and over. Finally, in terms of place of residence, we have 44 subjects residing in the Lukunga district, 9 in Funa, 31 in Mont-Amba and 7 in Tshangu.

Instrument and Procedures

An instrument (psychological test) and a technique were used for data collection. These were the social network addiction test and the documentary technique.

Social Network Addiction Test. The Social Network Addiction Test used in the present study is an adaptation of the French version of the Internet Addiction Test by Khazaall et al. (2008). The Internet Addiction Test is a questionnaire designed by Young (1998) based on DSM-IV criteria for pathological gambling. It is designed to diagnose and assess the intensity of Internet addiction in the respondent. The items assess different aspects of Internet addiction, such as loss of control over Internet use, the predominance of the Internet in different areas of the respondent's life, withdrawal symptoms, certain negative consequences of Internet use, and so on.

It comprises 20 items corresponding to twenty situations for which the subject must indicate the frequency with which he or she is confronted on a scale of 1 (rarely) to 5 (always). In line with the numerous studies carried out on specific internet addictions and using this test in a modified version adapted to the specific purpose of the addiction (Brand, 2011; Chan & Rabinowitz, 2006; Kim et al., 2008; Pawlikowski & Brand, 2011), we decided to make the same adaptation. Thus, each term "internet" in the statements of the 20 items was replaced by the term "social networks".

Subjects are classified as social network addicts when their test score is greater than or equal to 50. Otherwise, the subject is considered non-addictive. In order to validate the test in the Congolese

context, we carried out an internal consistency study to verify its unidimensional structure. The results showed that the test had good internal homogeneity, given that the overall value of Cronbach's alpha (72) was above the minimum acceptability threshold (.70) for the reliability coefficient.

Documentary Technique. The documentary technique enabled us to obtain information on the marks obtained by the subjects in the study at the end of the 2020-2021 academic year (second session) through the points ranking.

Data Analysis

The statistical processing of the study data was based on the Chi-square test. This enabled us to relate social networking addictions to students' academic performance, based on observed frequencies.

Research Results

Global Results of the Study

The following table shows the number of subjects according to the presence or absence of social network addictions.

Table 1

Distribution of Subjects According to Social Networking Addiction

Addiction	Number (N)	Percentage (%)
Non-addicts	68	74,7
Addicts	23	25,3
Total	91	100,0

Source: author's own development.

Table 1 shows that only 23 of the 91 subjects (25.3%) have developed social network addictions or are addicted to social networks. Specifically, these 23 subjects are more preoccupied with social networks, they need to use social networks for longer and longer in order to be satisfied, they make repeated but unsuccessful efforts to control, reduce or stop social network use, they become agitated or irritated when trying to reduce or stop social networking, they stay online longer than expected, they jeopardize or risk losing important emotional relationships and study opportunities because of social network and, finally, they use social network to escape difficulties or to relieve their mood. The social networks most used by these subjects are: (1) the WhatsApp social network (95%), (2) facebook (90%) and (3) tiktok (70%). This classification of social networks emerged from the informal interviews we had with the study subjects.

The results relating to the academic performance of the study subjects are presented qualitatively. Specifically, point percentages are grouped into three categories providing information on the quality of student achievement as suggested by Ngub'usim Mpey-Nka et al. (2017): (1) category 1 (high degree: best quality achievement): at least 70% points; (2) category 2 (medium degree: medium quality achievement): 60-69% and (3) category 3 (low degree: low quality achievement): 50- 59%. The following table shows the number of subjects in the study according to the quality of their academic performance.

Table 2*Distribution of Sample Subjects by Academic Performance*

Percentages	Number(N)	Percentage (%)
50-59 %	30	33,0
60-69 %	57	62,6
70% and over	4	4,4
Total	91	100,0

Source: personal development of the author.

From Table 2, we see that 30 subjects (or 33.0%) demonstrated low-quality achievement (50-59%), 57 subjects (or 62.6%) demonstrated medium-quality achievement (60-69%) and 4 subjects (or 4.4%) demonstrated better-quality achievement (at least 70%).

Relationship Between Social Network Addiction and Academic Performance

As the aim of our work is to assess the effect of social network addictions on academic performance, we compare the level of academic performance of social network-addicted subjects with that of non-social network-addicted subjects. To do this, we use the chi-square test, the statistical indices of which are presented in the following table.

Table 3*Effect of Social Network Addictions on Academic Performance*

Addiction	Academic performance			Total	Chi-square	Sig.	Dec.
	50-59 %	60-69 %	70% et +				
Non-addicts	17 (25,0%)	47 (69,1%)	4 (5,9%)	68 (100%)	11,50	0,009	Significant
Addicts	13 (56,5%)	10 (43,5%)	0 (%)	23 (100%)			

Source: author's own development, legend : Sig: significant, Dec: decision.

Table 3 shows that the academic percentages of addicts and non-addicts differed. Indeed, addicts showed more low-quality successes (50-59%), while non-addicts achieved more medium-quality successes (60-69%). What's more, only the non-addicts were able to demonstrate better quality success (5.9% of subjects with at least 70% points), whereas no addict subjects were able to fall into this success category.

Statistical comparison with chi-square confirmed these numerical differences ($p < 0.05$). Thus, we can conclude that social network addictions negatively influenced the academic performance of the study subjects.

Differential Analysis of Study Results

At this level, we test the effect of the study's socio-demographic variables (faculty, gender, age and place of residence) on the study's results. To do this, we use the chi-square test, the results of which are presented in the following tables.

Table 4*Effect of Sociodemographic Variables on Addiction to Social Networks*

Variables	Chi-square	Sig.	Dec.
Faculty	14,55	0,70	Not significant
Gender	0,00	0,96	Not significant
Age	2,09	0,55	Not significant
Place of residence	0,44	0,50	Not significant

Source: author's own development.

Table 4 shows that none of the socio-demographic variables in the study influenced the subjects' addiction to social networks ($p > 0.05$).

Table 5*Effect of Sociodemographic Variables on Academic Performance*

Variables	Chi-square	Sig.	Dec.
Faculty	17,33	0,07	Not significant
Gender	2,77	0,25	Not significant
Age	3,06	0,80	Not significant
Place of residence	6,52	0,03	Significant

Source: author's own development.

Table 5 shows that only the environment variable significantly influenced the academic performance of the subjects surveyed, as the probability associated with it was below the critical probability ($p < 0.05$). In concrete terms, subjects living in the Lukunga district scored higher than those in other districts (Funa, Mont-Amba and Tshangu). This district groups together the most affluent communes, including the famous commune of Gombe, considered to be the seat of the country's institutions.

Discussion

The results of the study indicate that 23 subjects out of 91 (25.3%) have developed a social network addiction or are addicted to social networks. We can expect this prevalence to increase significantly in the future, as studies have shown that, in the universities of the future, teaching will be more virtual than traditional. In these virtual teaching environments, social networks will play a crucial role in the teaching- learning process. One might therefore think that this heavy use of social networks for academic purposes could also give rise to a high prevalence of social networking addictions.

The prevalence of social networking addictions also varies from country to country, and is far from the same everywhere. For example, in the USA, Siomos et al. (2008) identified only 4% of students as cyber- addicted. In Madagascar, the situation seems even more serious: Razafilisy et al. (2020) identified 40.55% of learners addicted to social networks.

Our addicted subjects thus spend more time on the social networks WhatsApp, Facebook and Tiktok for entertainment. We can thus understand that their use of social networks or the internet is purely entertaining in place of academic use. Specialized literature has that excessive use of social networks has a negative influence on academic performance (Michaut & Roche, 2017; Ngnoulaye &

Gervais, 2015). This conclusion was verified as our results demonstrated a significant difference between the academic performance of subjects addicted to social networks and that of non-addicted.

Two main hypotheses may account for this negative relationship between social networking addictions and the academic performance of the study subjects. The first hypothesis is linked to the tendency of students to use social networks at the same time as they are engaged in academic activities. Indeed, observation of students in universities reveals that they are connected on social networks while they are attending lectures. This shared attention can only be detrimental to their academic efficiency. This finding was also made by Junco and Cotton (2012) among students at a public institution in the northeastern United States (N = 3866). These authors found that texting and checking Facebook while studying or doing homework were common behaviors. Moreover, this behavior interfered with schoolwork and was negatively related to overall university GPA.

The second hypothesis relates to the psychological effects of social networking addictions, which can, in certain contexts, affect students' academic careers. Indeed, studies have shown that social networking addictions negatively affect the psychological and physical dimensions of subjects. On the physical level, these include fatigue, insomnia, musculoskeletal disorders and visual disturbances. On the psychological side, these include attention deficit hyperactivity disorder, depression and anxiety... All these physical and psychological effects are bound to disrupt academic activities, significantly reducing student performance.

Our results thus reinforce Junco's (2012) findings that multitasking with certain technologies (Facebook and text messaging) negatively affect semester average. Gaudreau et al. (2014) conclusion that certain behaviors (surfing the internet for entertainment or social network, texting during class) are detrimental to student performance is, likewise, confirmed in our study.

Our results seem to reinforce Endrizzi's (2012) conclusion that the effects of social network addictions on academic performance vary from one educational context to another. Our results, in fine, call into question the conclusion of Appel et al. (2020) where it was found that the use of social networks does not seem to have a significant negative impact on learners' academic grades.

The results in terms of academic grades reveal that 30 subjects (i.e. 33.0%) demonstrated low-quality achievement (50-59%), 57 subjects (i.e. 62.6%) demonstrated medium-quality achievement (60-69%) and 4 subjects (i.e. 4.4%) demonstrated higher-quality achievement (at least 70%). These results show that the substudy subjects are performing well academically and could make a positive contribution, where possible, to meeting the country's challenges.

Differential analysis revealed that none of the four sociodemographic variables in the study influenced study subjects' social network addiction. The non-influence of the age group variable on social network use among the students in the study calls into question Bofula Lobebe et al. (2023) conclusion that young people use social networks more excessively than older people. The non-influence of the gender variable calls into question Bofula Lobebe et al. (2023) conclusion that women are the primary users of social networks, whatever the reason. The lack of influence of the variables faculty and place of residence on the social networking addiction of the study subjects calls into question the conclusions of Appel et al. (2020) where these variables are identified as determinants of social network use.

In terms of academic performance, the results of the study revealed that only one of the four variables (place of residence) influenced the academic performance of the study subjects. These results

support the theory of environmental determinism, in which the environment of residence is considered an explanatory factor in academic performance (Enguta Mwenzi et al., 2022). Our results support the conclusion of several studies cited by Enguta Mwenzi and Bayenga Ndibeyang (2023) that learners from affluent backgrounds perform better in learning activities than those from disadvantaged backgrounds. Our results demonstrating the non-influence of gender, age group and study stream on academic performance challenge the conclusions of several studies (Mwenge Muhongo, 2014; Enguta Mwenzi & Bayenga Ndibeyang, 2023) where these variables are considered determinants of academic performance.

Conclusions and implications

The University's mission is not just to impart knowledge to students, but also to ensure that the physical and mental conditions in which teaching takes place are optimal. This means providing psychological support to ensure that students are in the best possible condition to benefit from quality teaching. It is at this level that psychological interventions are needed to reinforce students' sense of well-being at the University. Such a state of well-being requires the management of certain psychological problems that can affect academic learning.

In the list of these psychological problems, addictions in all their forms occupy a prominent place because of their devastating effects on academic life. The present study took up the issue of addictions and sought to assess the effects of social network addictions on the academic performance of students at the University of Kinshasa. To this end, a social network addiction test was administered to a limitedly representative sample of 91 finalist students from a number of faculties at the University of Kinshasa enrolled for the 2020-2021 academic year. In addition to this test, the documentary technique was used to obtain the students' academic grades at the end of the academic year.

The results of the study revealed that 23 of the 91 subjects (25.3%) were addicted to social networking, compared with 68 subjects (74.7%) who were non-addicts. In terms of academic performance, the study identified three student profiles: (1) 30 students (or 33.0%) who demonstrated low-quality achievement (50-59%), (2) 57 students (or 62.6%) who demonstrated medium-quality achievement (60-69%) and (3) 4 students (or 4.4%) who demonstrated higher-quality achievement (at least 70%).

The results obtained demonstrated the negative effect of social network addictions on the academic performance of the study subjects. In other words, addicts achieved lower academic percentages than non-addicts. In future universities in the Democratic Republic of Congo, where wifi access will be totally free, we can expect to see an increase in the prevalence of social networking addictions among students. This could have a major impact on the academic careers of future students. At present, it is thought that the fact that students have to pay for their own Internet subscription may be a protective factor against excessive use of social networking sites. That's why it's important to put in place mechanisms to prevent social networking addictions, based on the Canadian or French models, for example.

In line with these two models, universities have set up listening or support services that provide information or resource people to address issues related to social network addictions, in order to facilitate students' academic success. In addition to this service, universities collaborate with addiction treatment institutions by referring students with strong social networking addictions to them. These services can operate as a guidance and counseling unit, with the aim of offering psychosocial care to

students addicted to social networking sites. In addition to this care, students need to be made aware of the risks of social networking addictions, and encouraged to regulate their use of social networks.

Suggestions for Future Research

As this study is limited to the relationship between social networking addictions and students' academic performance, it does not provide sufficient information on the psychological consequences of social networking addictions. For this reason, the importance for future studies to focus on the relationship between social network addictions and psychological health problems of Congolese university students (life satisfaction, well-being, quality of life, depression, self-esteem...) is visible. Such studies could provide additional information concerning psychological effects of social networking addictions in the Congolese context. In addition, the mediating role of students' self-confidence (self-control) or personality traits in the relationship between academic performance and network addictions should be investigated.

A deep analysis on the effects of social network addictions on motivation in educational activities is also desirable. It would help identifying the motivational factors most affected by social network addiction. A study concerning social network addictions among teachers and, if possible, assess their effects on their professional skills would also be advisable. Finally, it is also possible to extend this study to the various Congolese universities (striving for a high degree of representativeness of the samples) in order to find out whether the results of this study (carried out at the University of Kinshasa) can be applied in these institutions.

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The Challenge EFL Teachers Face in Turkey: Burnout

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Abstract: Burnout is quite common in educational settings for a variety of reasons and may specifically affect the lives of teachers, especially English language teachers. Therefore, it needs to be analyzed in detail and resolved by policymakers in education. To reveal this significant drawback, this research aims to examine the research studies on the issue of burnout among English as foreign language teachers from primary schools to higher education that were carried out in the English language teaching context in Turkey between 2012 and 2022 through a systematic review. 19 research studies done in Turkey were obtained and the findings of the studies related to the burnout challenge of Turkish English language teachers were scrutinized. Based on the findings of the study, English teachers are the most prevalent demographic to have a variety of ailments due to burnout, which is caused by extended exposure to high levels of stress, chronic fatigue, unhappiness, and feelings of inefficacy. The unique finding of this study is that English teachers are mainly faced with challenging and stressful conditions in their daily teaching life as they are forced to adapt to changing student profiles and technological advancements as well as rising demands of society and as a result, they struggle with burnout even if they are still in their early years of teaching English. In the meanwhile, their commitment to in-service training and the support of their superiors are crucial and maintaining a healthy lifestyle is also important. Besides, a comprehensive strategy that includes regulatory modifications, encouraging work conditions, and professional development opportunities is required to

address English teacher burnout in Turkish society and thus, by prioritizing teacher well-being, education policies can have a positive influence on the education sector by ensuring the availability of motivated and effective English instructors who can provide high-quality education to students and these policies could eradicate negative views and provide the respect for the teaching profession by fostering a resilient English teaching workforce while mitigating the risks of burnout.

Keywords: Burnout, EFL instructor, Turkish EFL teachers' burnout, and EFL lecturers' burnout.

Introduction

Teaching is a demanding occupation and one of the most stressful professions (Borg & Riding, 1991). Although teaching is a challenging job (Hepburn & Brown, 2001), teachers endeavor to fulfill their work, but they need motivation, energy, and a clear mind to be productive and proficient. Most of the teachers start off enthusiastically, but as time goes on, the teaching job becomes increasingly oppressive and exhausting. According to a survey conducted in 2001, almost a quarter of teachers stated that teaching is a very lamentable job (Kyriacou, 2001). When compared to other career fields, teachers have high degrees of exhaustion and cynicism (Maslach et al., 1996) and due to high level of stress in teaching, teachers are more likely to have psychological symptoms such as moderate irritation, impatience, and anxiety, as well as more significant depressive symptoms, which lead to burnout.

Burnout, which is multidimensional, long-term, and chronic in character, is a response to the challenges and complications people confront at work (Maslach et al., 2001). Burnout is defined by Merriam-Webster as "exhaustion of physical or emotional strength or motivation, frequently as a result of continuous stress or dissatisfaction," although multiple definitions concentrating on different parts of this term can be found in the literature review.

Burnout is widely prevalent in educational settings for a variety of reasons, including job overburdening on teachers in their early careers, classroom administration issues, institution obligations, teaching remunerations, management support, students' attitudes toward their teachers, insufficient job resources, unfavorable or destructive school environment, and a lack of coping abilities and emotional intelligence (Cephe, 2010; Chan, 2007; Kottler et al., 2005). In addition, sudden events like the COVID-19 epidemic have exacerbated the symptoms and causes of burnout (Pressley, 2021; Sokal et al., 2020). To concentrate on burnout, many studies have been carried out, and since burnout is a context-specific phenomenon, the results have varied. The causes, consequences, and relationships between burnout and other aspects of teachers' life have been sought in various research studies in the national and international arena (Atmaca, 2017; Ceylan & Mohammadzadeh, 2016; Genç, 2016; Erdağ & Tavil, 2021; Kimsesiz, 2019; Özkara, 2019; Öztürk, 2013).

Even though burnout has inevitably influenced English language teachers, this notion has not been searched adequately to deal with English language teacher burnout. English language teachers nowadays face the challenge of adjusting to new teaching methodologies, integrating digital technology into the lesson, and meeting a variety of student expectations. These rapid changes driven by the advancement of technology also force English language teachers to change their pedagogical approaches, integrate digital resources, adapt to online education, create virtual classrooms, and manage remote learning as experienced during the period of the pandemic. Most importantly, English teachers struggle for their students' well-being and motivation as the teachers are expected to support their students' social- emotional development. Besides, the individual learning styles of learners need

to be considered while preparing curriculum and forming teaching strategies, and as a result, all these responsibilities and shifting dynamics may contribute to increased stress levels and risk of burnout among English teachers, leading them to neglect their self-care and mental health support and their professional development. Overall, all these factors in the evolving educational system make English teacher burnout a crucial issue in the education sector with a necessity of providing new policies. To draw the attention of policymakers to burnout influencing English language teachers, education policies need to proactively address burnout issues and support systems that enhance job satisfaction and workforce in order to raise policymakers' attention to how burnout affects English language teachers.

Regarding all these justifications, a better understanding of the phenomena of burnout among English language teachers is vitally important since there is a scarcity of literature regarding English language teacher burnout causing a potential gap that needs to be focused. Thus, in order to prioritize the English language teaching (ELT) context and English as a foreign language (ELF) teachers' well-being and to promote a resilient teaching workforce, it is crucial to especially focus on those concerns with the unique results in this systematic review study with the unique findings.

Literature Review

Individuals are under pressure to offer their best practice and keep up to date with their knowledge due to the current demanding job environment and competitive working area, as well as fast-evolving technologies. The pressure created by such phenomena, if left unabated and consistent, leads to burnout; as Freudenberger (1974) points out, the pressure from within and outside to show better performance, as well as the push from the authorities to accomplish more, and all these combine to form burnout (Kazimlar & Dollar, 2015).

Freudenberger (1974) coined the term “burnout” first in the context of social sciences, while he was attempting to identify his own burnout symptoms and conducting a study to explain them. According to his study, burnout leads to feeling weariness and his study further justifies that burnout is long-term in nature, representing that symptoms typically appear a year after an individual begins working in such an environment, and it manifests itself through a variety of physical and behavioral signs, and it occurs as a result of the work being done for an excessive amount of time, frequency, and intensity.

Burnout is also defined as a progressive retrogression of early enthusiasm, vitality, and drive that employees may experience in the fields where assistance services are provided (such as teaching) because of their work environment. This description is also consistent with the World Health Organization's (WHO) definition of burnout, which categorizes burnout as an “occupational phenomenon” rather than a medical disease (World Health Organization, 2019).

According to Maslach et al. (1997), burnout is defined as a multidimensional phenomenon characterized by psychological syndromes that are emotional exhaustion, depersonalization, and decreased personal accomplishment, whereas Schaufeli emphasizes the chronic nature of burnout, claiming that it remains significantly stable over time and that stressful job-related elements are strong predictors of burnout than an individual's personality characteristics.

Maslach Burnout Inventory (MBI) (Maslach et al., 1997) is a standard tool for measuring burnout by focusing on the characteristics specifically mentioned in the definition of burnout such as emotional fatigue, disengagement or cynicism related to work, and decreased personal efficiency. Though the MBI is still the most extensively used measure of burnout, an alternative measure called the Oldenburg

Burnout Inventory (OLBI) can be used to target different aims and overcome some of MBI's shortcomings, such as the scale's psychometric and conceptual constraints (Halbesleben & Demerouti, 2005). The underlying model for both measures is the same, but OLBI only considers two elements of MBI studies: fatigue and dissociation, leaving out the third element, personal achievement. On the other hand, it expands the fatigue element to include both mental and physical fatigue, taking a more expansive approach to conceptualization (Shirom, 2005). In addition to OLBI, Danish researchers used the Copenhagen Burnout Inventory (CBI) (Kristensen et al., 2005) to determine burnout when they were having difficulty in using MBI in Denmark. CBI perceives burnout as a feature of three interrelated spheres: life, work, and client service, and moves one step further than MBI, which focuses primarily on employees in the human service sector. The other scales used in the current research studies are the Teacher Burnout Scale by McCroskey et al. (2001), the Teacher Burnout Scale by Kaner et al. (2008), and the Teacher Burnout Scale by Richmond et al. (2001). Nonetheless, MBI is the most widely used scale in burnout investigations.

According to research studies, teachers are more likely to experience burnout than other professions (Stoeber & Rennert, 2008), which occurs for a variety of causes, including demographic and job-related variables (Bümen, 2010; Cemaloğlu & Sahin, 2007; Demirel & Cephe, 2015; Hismanoğlu & Ersan, 2016; Mede, 2009; Unaldi et al., 2013). A study conducted in Turkey (Atmaca, 2017) reviewed extensive literature to find sources, symptoms, and effects of burnout in Turkish teachers and concluded that teachers feel job overburdening even in the early stages of their careers due to classroom administration issues, institutional obligations, the remuneration for the teaching profession, managerial support, students' attitude toward their teachers, insufficient job resources, undesirable or destructive school environments. Burnout is a serious issue that forces instructors to leave their jobs because of a lack of coping abilities and emotional intelligence. According to certain research (Chirico, 2016), instructors with a higher level of education are more prone to feel burnout than those with a lower level of education, implying that those with a higher level of education have more responsibilities and tend to experience more stress.

Teachers' burnout specifically can cause more adverse impacts on students' education and motivation (Cephe, 2010; Demirel & Cephe, 2015; Egyed & Short, 2006). As stated, it is more difficult for teachers to avoid situations that lead to burnout because their day-to-day job involves interactions with a variety of stakeholders, including students, colleagues, parents, and management staff, among others, all of whom affect their social situation directly or indirectly. An examination of national surveys of university personnel in the United Kingdom (Watts & Robertson, 2011) revealed that the education department is no longer a stress-free work environment and that excessive work burden, an accumulating strain to issue research work and secure financial aid for research are some important determinants.

As proven, "burnout" has a variety of detrimental effects on an individual's health (physical and emotional), general lifestyle, and job performance. It has been linked with a variety of job withdrawal behaviors, including nonattendance and plans to terminate the job, with those who choose to stay on the job experiencing decreasing proficiency and production. As a result, burnout reduces job satisfaction and decreases commitment to the job. Burnout does not affect just one person; it is contagious in nature and propagates itself through informal interactions. As a result, those who suffer from this condition can have a negative impact on their coworkers by having more personal difficulties with them or by messing with them (Maslach et al., 2001). Due to the significance of drawing attention to burnout, there is a necessity to carry out a study that only concentrates on English language teacher burnout.

Aim and Significance of The Study

EFL teachers are expected to supervise their students to help them study and improve their spirits, which may make them more sensitive to negative consequences as a result of greater interpersonal interactions. Moreover, due to the large number of students who demand teachers' services, especially if they demonstrate apathy, this vulnerability may be magnified. So, in addition to the general causes of burnout among teachers, EFL teachers face additional sources of burnout and distinct factors and determinants unique to the school context. This existing challenge makes the completion of an independent study crucial to examine the impact of burnout on EFL teachers in the Turkish context. Therefore, this occupational phenomenon requires to be examined for further studies and practices not only for English language teachers but also for other stakeholders in ELT to provide significant education policies to deal with burnout.

In line with this aim, the goal of this study is to review the articles that were conducted in the ELT context on EFL teachers' burnout problem between the years 2012 and 2022, to scrutinize the findings related to the burnout drawback of EFL teachers, to underlie some suggestions for further research as well as to highlight the need for proactive policies in Türkiye and in the world.

Research Questions

To reach the aims of the study, the following research questions were addressed:

1. What research trends are seen in the burnout examination of Turkish EFL teachers in terms of research foci, research methods, participants, context, and burnout scales in the studies conducted between 2012 and 2022?

2. Based on the studies conducted between 2012 and 2022, what are the main factors experienced by Turkish EFL teachers that cause burnout?

Methodology

This study is a systematic review that brings together the quantitative studies on the burnout levels of primary school, secondary school, and high school English teachers as well as English teachers working in higher education between 2012-2020 in Turkey on EFL teachers' burnout in the Turkish context with content analysis. To analyze relevant data extracted from each article, identifying themes or categories within selected articles are overviewed and identified and a coding framework in content analysis is developed based on the literature via specific concepts, ideas, or themes.

Also, in education research, descriptive studies are important since they tend to depict the real situation, and many studies rely on descriptive study findings, in other words, "unless researchers first generate an accurate description of an educational phenomenon as it exists, they lack a firm basis for explaining or changing it" (Gall et al., 2003, p. 374). From this standpoint, in this study, the research studies employing quantitative and mixed methods research design (only articles) that concentrate mostly on Turkish EFL teachers' burnout in the Turkish context were examined, and their findings were analyzed to offer a thorough review.

To search for the studies, the following keywords were used: Burnout, EFL instructor, Burnout Level, Turkish EFL teachers' burnout, and EFL lecturers' burnout. In addition, while searching for the research topic, the online databases and indexes utilized to compile the most pertinent research studies are as follows: Education Research Information Center (ERIC), Google Scholar, and Research Gate. As

there are numerous studies concerning burnout in the literature, the eligibility criteria included, (i) the studies that were conducted in the Turkish context, (ii) only research articles that were published between 2012 and 2022, (iii) full-text articles, (iv) the studies written in English, and (v) the studies that utilized “Burnout scales”.

The analyses of the articles were presented in the tables. Table 1 shows the selected articles on EFL teachers’ burnout with their codes (A1, A2, A3, and so on), authors, publication year, the aim of the study, educational context, research methods, and the scales utilized.

Table 1

The Analysis of Studies on EFL Teachers’ Burnout in Turkish Context: 2012–2022

Article ID	Author & Year of publication & Journal	Participants	Method	Research purpose	Burnout Scales
A1	Çağla Atmaca, 2017 International Association of Research in Foreign Language Education and Applied Linguistics ELT Research Journal	EFL instructors	Mixed Methods Research Design	To scrutinize the causes of burnout among English teachers, and their expectations for avoiding burnout and enhancing job satisfaction.	Maslach Burnout Inventory (Maslach & Jackson, 1981)
A2	Betül Özkara, 2019 Journal of Family, Counseling, and Education	EFL teachers	Quantitative Research Design	To assess the self-efficacy beliefs and burnout levels	Maslach Burnout Inventory (MBI) (Maslach and Jackson, 1981; Huang, 1988)
A3	Gökhan Öztürk, 2013 International Online Journal of Educational Sciences	EFL instructors	Mixed Methods Research Design	To investigate the burnout of Turkish English instructors at state universities and the factors of burnout	The Teacher Burnout Scale (McCroskey et al., 2001)
A4	Ali Ceylan & Behbood Mohammadzadeh, 2016 International Journal of New Trends in Arts, Sports & Science Education	EFL lecturers	Quantitative Research Design	To examine the burnout levels of the lecturers	Maslach Burnout Inventory (Maslach & Jackson, 1981)

A5	Murat Hişmanoğlu & Yüksel Ersan, 2016 Journal Of Educational and Instructional Studies in The World	EFL teachers	Quantitative Research Design	To investigate Turkish EFL teachers' burnout levels	Maslach Burnout Inventory-Educators' Survey (MBI-ES)
A6	Ömer Gökhan Ulum, 2019 Black Sea Journal of Public and Social Science	EFL instructors	Quantitative Research Design	To find out if there is a relation between EFL teachers' social problem-solving skills and their burnout levels	Occupational Burnout Inventory (Maslach et al.,1986)
A7	Derya Kulavuz-Önal & Sibel Tatar, 2017 Journal of Language and Linguistic Studies	EFL instructors	Quantitative Research design	To search for EFL teachers' burnout and their engagement in professional learning activities	Maslach Burnout Inventory-Educators Survey (Maslach,et al., 1996)
A8	Nur Gedik Bal, 2019 International Association of Research in Foreign Language Education and Applied Linguistics ELT Research Journal	EFL instructors	Mixed Method Research Design	To determine the level of burnout of EFL teachers and to uncover possible causes of burnout and instructors' suggestions	Maslach Burnout Inventory (Maslach & Jackson, 1981)
A9	Dinçay Köksal, Süleyman Gün, Emrah Özdemir, Gülşah Tercan & Emre Bilgin, 2018 Journal of Language and Linguistic Studies	EFL teachers	Mixed Methods Research Design	To search for EFL teachers' written corrective feedback preference and the relationship between their preferences, their self-efficacy beliefs, and	Maslach Burnout Inventory (Maslach et al.1997)

				burnout levels	
A10	Melih Kazimlar & Yesim Kesli Dollar, 2015 Participatory Educational Research (PER)	EFL instructors	Quantitative Research Design	To search for the burnout levels of EFL teachers and to examine if there are any organizational distinctions between the burnout levels of EFL teachers	Maslach Burnout Inventory-Educators' Survey (MBI-ES)
A11	Eda Ercan Demirel & Paşa Tefik Cephe, 2015 Journal of Language and Linguistic Studies	EFL instructors	Mixed Methods Research Design	To examine the burnout levels of English language instructors	Maslach Burnout Inventory Educators Survey (MBI Maslach, et al.,1996)
A12	Gülten Genç, 2016 International Journal of Psychology and Educational Studies	EFL teachers	Quantitative Research Design	To investigate the links between learned resourcefulness and burnout	The Teacher Burnout Scale (Maslach, et al.,1996)
A13	Ahmet Cezmi Savaş, Yunus Bozgeyik & İsmail Eser, 2014 European Journal of Educational Research	EFL teachers	Quantitative Research Design	To investigate the link between teacher efficacy and burnout	Maslach Burnout Inventory (Maslach & Jackson,1981)
A14	Selma Deneme, 2021 Cypriot Journal of Educational Science	EFL teachers	Quantitative Research Design	To investigate the degrees of occupational burnout among Turkish EFL teachers	The Teacher Burnout Scale (Kaner et al.,2008)
A15	Gülşen Erdağ & Zekiye Müge Taviş, 2021 International Journal of Curriculum and Instruction	EFL teachers	Quantitative Research Design	To search for the burnout levels of English teachers in primary schools and their coping strategies	The Teacher Burnout Scale (Richmond et al., 2001)

A16	Fatma Kimsesiz, 2019 Journal of Language and Linguistic Studies	EFL teachers	Quantitative research design	To search for the burnout levels among EFL teachers and the effect of school type on burnout levels	Maslach Burnout Inventory (Maslach & Jackson, 1981)
A17	Ihsan Unaldi, Ferhat Dolas, Mehmet Bardakci, Dilara Arpacı, 2013 Journal of Education and Practice	EFL teachers	Quantitative research design	To examine the connection between occupational burnout and Turkish EFL teachers' personality qualities	Maslach Burnout Inventory (Maslach et al., 1996)
A18	Çiğdem Güneş & Hacer Hande Uysal, 2019 Journal of Language and Linguistic Studies	EFL teachers	Mixed methods research design	To search the levels of burnout and organizational socialization among EFL teachers	Teacher Burnout Scale (Richmond et al., 2001)
A19	Ferhat Karanfil & Amanda Yeşilbursa, 2021 The Journal of Language Teaching and Learning	EFL teachers	Mixed methods research design	To discover the level of EFL teachers' burnout in public and private K12 schools and the reasons	Maslach Burnout Inventory-Educators Survey (MBI-ES) (Maslach et al., 1996)

Findings

The findings of the data gathered through the selected research studies are discussed in detail in response to research questions. The aims of the research studies in the scope of this review are listed in Table 2 to address the first research question:

Table 2

The Aims of the Research Studies

Aims	Research Studies (Article IDs)	Frequency

To determine EFL teachers' degrees of burnout and various causes of burnout via demographic variables	A1, A3, A4, A5, A8, A10, A11, A15, A16, A19	10
To search for self-efficacy beliefs and their relationship to written corrective feedback, teacher efficacy, and burnout levels	A2, A9, A13	3
To investigate the relationship between EFL teachers' social problem-solving skills and their burnout levels	A6	1
To examine EFL teachers' occupational burnout and engagement in professional learning activities, personality qualities, and organizational socialization	A7, A14, A17, A18	5
To analyze the links between learned resourcefulness and burnout	A12	1

Table 2 illustrates that 10 of 19 research studies included in this review were aimed at determining the relationship between the burnout levels of EFL teachers and various major causes that contribute to burnout, as well as the expectations for reducing burnout and promoting job satisfaction among English teachers (A1, A3, A4, A5, A8, A10, A11, A15, A16, A19). In addition, these studies targeted investigating the extent of teacher burnout of Turkish-English instructors at universities via demographic variables. At the same time, instructors' recommendations for preventing burnout were searched. Besides, the other three studies (A2, A9, A13) examined EFL teachers' attitudes toward written corrective feedback and their self-efficacy beliefs and their written corrective feedback preference, teacher efficacy, and burnout levels. While one study (A6) investigated the relationship between EFL teachers' social problem-solving skills and their burnout levels, another study (A12) tried to analyze the links between learned resourcefulness and burnout. Also, some of the studies (A7, A14, A17, A18) attempted to examine the EFL teachers' occupational burnout and the degrees of occupational burnout among Turkish EFL teachers using a variety of variables, to determine whether there are any organizational differences between low and severe burnout EFL teachers/instructors, and to search for

the connection between occupational burnout and Turkish EFL teachers' personality qualities, their engagement in professional learning activities, personality qualities, and organizational socialization and to look into whether there is any effect of school type on burnout levels.

The categorization of chosen studies according to their research methods was also another focus of the first research question. The following table summarizes the findings linked to that category:

Table 3

The Research Methods of the Selected Studies

Research Methods	Research Studies (Article IDs)
Qualitative Methods	-
Quantitative Methods	A2, A4, A5, A6, A7 A10, A11, A12, A13, A14, A15, A16, A17
Mixed- Methods	A1, A3, A8, A9, A11, A18, A19

Table 3 shows that quantitative research methodologies were used in 13 of the 19 research studies that were chosen. Furthermore, 7 research studies used a mixed-method study research design to collect data via questionnaires and interviews. Finally, none of the research studies that were chosen used qualitative research methodologies.

Another focus of the current study is to identify the participants and their numbers involved in these studies and the context in which they work in response to the first research question. Table 4 summarizes the findings in terms of educational context and participants:

Table 4

The Participants, Context, and Number of Participants in Research Studies

Research Studies	Participants	Context and Numbers of Participants
A1	EFL teachers and instructors	Primary School (12), high school (6), university (23) - state, private university (1)
A2	EFL teachers and instructors	Primary, secondary, high schools and university (118)
A3	EFL instructors	Instructors from 8 different state universities (139)
A4	EFL lecturers	University (37)
A5	EFL teachers	Public University (164), Charity University (52)
A6	EFL instructors	University (116)
A7	EFL instructors	University (224)
A8	EFL instructors	University (64)

A9	EFL teachers	State University (36)
A10	EFL instructors	Foundation University (81)
A11	EFL instructors	3 State Universities (70)
A12	EFL teachers	The schools located in Malatya (163)
A13	EFL teachers	Primary and secondary state schools in Gaziantep (163)
A14	EFL teachers	Primary, secondary, and state and private high schools (365)
A15	EFL teachers	Primary schools in Tekirdag (108)
A16	EFL teachers	Public schools in Kırşehir (74)
A17	EFL teachers	70 schools in Gaziantep (260)
A18	EFL teachers	Public schools (507)
A19	EFL teachers	State and private schools (224)

Table 4 illustrates that the studies coded A3, A4, A5, A6, A7, A8, A9, A10, and A11 concentrated on Turkish EFL instructors from private, state, foundation, and charity universities in many different universities in Turkey. On the other hand, studies A1 and A2 included 118 Turkish EFL teachers in elementary, secondary, and high schools, as well as universities from various cities. Apart from these studies, the other eight studies were carried out with EFL teachers working at different types of schools from primary, secondary to high schools in different regions of Turkey (A12, A13, A14, A15, A16, A17, A18, and A19). In the context of primary, secondary, and high school-based studies, information about some places (cities) where the studies were conducted is also presented. These cities are Malatya, Gaziantep, Tekirdağ and Kırşehir.

In fact, two separate studies were conducted on EFL teachers' burnout in Gaziantep. Concerning the number of participants, A1 was conducted in a state primary school with 12 participants, a state high school with 6 participants, a state university with 6 participants, and a private university with 1 participant. A2 was done with 118 participants working in primary, secondary, and high schools, and universities. A3 included 139 participant instructors from 8 different state universities. A4 was conducted at the university with 37 participants. A5 was carried out with 164 participants from public universities and 52 participants from charity universities. 116 participants from the university were involved in A6. For A7, 224 participants from the university contributed to the study. A8 was done with 64 participants from the university. 36 EFL teachers from the university participated in A9. 81 participant EFL instructors working at a foundation university were involved in A10. 70 EFL instructors working in three different state universities were the participants of A11. Apart from these, A12 included 163 participants from Malatya and A13 was composed of 163 participants from Gaziantep. A14 participants were 365 EFL teachers working in primary, secondary, state, and private high schools. From primary schools in Tekirdag city, 108 EFL participants were involved in A15. 74 Public school EFL teachers in Kırşehir were the participants of A16. From Gaziantep, 260 EFL teachers working in 70 schools participated in A17. 507 EFL teachers from public schools were involved in A18 and 224 EFL teachers from state and private schools took part in A19.

Concerning the burnout scales used as a response to the first research question, Table 5 presents the findings:

Table 5*The Burnout Scales in the Selected Studies*

Research Studies	Burnout Scales Used
A1	Maslach Burnout Inventory (Maslach & Jackson, 1981)
A2	Maslach Burnout Inventory (MBI) (Maslach and Jackson, 1981)
A3	The Teacher Burnout Scale (Mc Croskey et al., 2001)
A4	Maslach Burnout Inventory (Maslach & Jackson, 1981)
A5	Maslach Burnout Inventory- Educators' Survey (MBI-ES) (Maslach et al, 1996)
A6	Occupational Burnout Inventory (Maslach et al.,1986)
A7	Maslach Burnout Inventory-Educators Survey (Maslach et al, 1996)
A8	Maslach Burnout Inventory (Maslach & Jackson, 1981)
A9	Maslach Burnout Inventory (Maslach et al.1997)
A10	Maslach Burnout Inventory- Educators' Survey (MBI-ES) (Maslach et al, 1996)
A11	Maslach Burnout Inventory Educators Survey (Maslach et al.,1996)
A12	The Teacher Burnout Scale (Maslach et al.,1996)
A13	Maslach Burnout Inventory (Maslach & Jackson,1981)
A14	The Teacher Burnout Scale (Kaner et al. ,2008)
A15	The Teacher Burnout Scale (Richmond et al., 2001)
A16	Maslach Burnout Inventory (Maslach & Jackson, 1981)
A17	Maslach Burnout Inventory (Maslach et al., 1996)
A18	The Teacher Burnout Scale (Richmond et al.,2001)
A19	Maslach Burnout Inventory-Educators Survey (MBI-ES) (Maslach et al.,1996)

As shown in Table 5, the researchers of the studies (A5, A7, A10, A11, A12 A17, A19) mainly applied the burnout scale entitled Maslach Burnout Inventory (Maslach et al., 1996). The other 6 research studies coded A1, A2, A4, A8, A13, and A16 utilized Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1981). Besides, A6 benefited from Occupational Burnout Inventory (Maslach et al., 1986). In addition, Maslach Burnout Inventory (Maslach et al., 1997) was employed in A9. Apart from the Maslach scales, the Teacher Burnout Scale by McCroskey et al. (2001) was used in A3. A14 implemented the Teacher Burnout Scale by Kaner et al. (2008). Additionally, A15 and A18 utilized the Teacher Burnout Scale by Richmond et al. (2001).

The second research question in this study focused on the identification of the main factors that lead to burnout depending on the studies conducted between 2012 and 2022. These factors are listed in Table 6:

Table 6

The Main Factors Causing Burnout in Studies Between 2012–2022

Research Studies	Factors causing burnout
A1	Teachers' personal variables (teaching experience, job satisfaction, self-efficacy beliefs), shareholders, the school's physical environment, and its sociocultural environment
A2	Teachers' personal variables (age, teaching experience)
A3	Teachers' personal variables (gender and year of experience), heavy workload, students, institutions, financial problems, social life and education policy
A4	Teachers' personal variables (gender, marital status, contract type, total teaching experience in the institution, weekly course load)
A5	Teachers' personal variables (teaching experience, monthly income), institution, department, administrative duty, and living in a big/small city
A6	Teachers' problem-solving skills
A7	Teachers' participation in professional learning activities
A8	Teachers' personal variables (the type of university) the burnout components –emotional exhaustion (workload, psychological pressure when working with people, feeling of disappointment, administrative issues, personal characteristics), personal accomplishment (positive and negative feelings), depersonalization (caring, seeing students and colleagues as objects or work to do, feeling of being accused)
A9	Teachers' written corrective feedback preferences
A10	The dimensions of burnout (emotional exhaustion, depersonalization, and reduced personal accomplishment) and the six areas of work life (workload, control, reward, community, fairness, and values)
A11	Teachers' teaching experience, academic factors (longer hours of teaching, and lower academic levels of the students, teachers' offices), administrative factors (institutional support, academic support of the colleagues, ideal working conditions) and professional development activities, the self-esteem of successful teachers, self-improvement, and the need to teach other levels
A12	Teachers' personal variables (school type) and teachers' learned resourcefulness skills
A13	Teachers' low self-efficacy beliefs
A14	Teachers' personal variables (seniority in the workplace, the support of colleagues and administrators)
A15	Lack of teachers' problem-coping strategies with burnout

A16	Teachers' personal variables (school type- primary school) and dimensions of burnout- emotional exhaustion, depersonalization, and reduced personal accomplishment
A17	Teachers' personality traits (neuroticism, extraversion, agreeableness, conscientiousness, and openness)
A18	Teachers' unsuccessful organizational socialization
A19	Teachers' personal variables (being single and working in state schools), school principals, heavy workload, behaviors of students and parents

As seen in Table 6, the prime factors leading to burnout as the findings of the research studies are presented. When these factors are examined in detail, burnout - a very individualized experience- is regarded to be influenced by numerous factors. Nevertheless, teacher burnout can mainly occur due to two paramount factors. These are internal factors and external factors that can contribute to teacher burnout.

The former, internal factors, include teacher's personality (neuroticism, extraversion, agreeableness, conscientiousness, and openness), teacher's preferences (written corrective feedback preferences), teacher's skills (teachers' learned resourcefulness skills, organizational socialization skills, problem- solving skills), teacher's strategies (teachers' problem-solving strategies) and demographic variables such as age, marital status, seniority, contract type, total work experience in the institution, workload, job satisfaction, salary, colleagues and administrators, participation in professional learning activities) are reported to have an impact on burnout. The latter, external factors, could be listed as school type/institutions, heavy workload, students, financial problems, social life, department, administrative duty, school principals, living in a big/small city, organizational stress, shareholders, educational policy, physical circumstances, the sociocultural atmosphere at schools, and students and parents' behaviors toward teachers.

Apart from these factors, the research studies underline the burnout components which are composed of three important dimensions of the Maslach Burnout Inventory (MBI). These are emotional exhaustion, depersonalization, and reduced personal accomplishment. Emotional exhaustion (workload, psychological pressure when working with people, feeling of disappointment, administrative issues, personal characteristics), personal accomplishment (positive and negative feelings) and depersonalization (caring, seeing students and colleagues as objects or work to do, feeling of being accused) lead teachers to feel burnout.

Discussion

This review paper yielded 19 research studies, all of which give a comprehensive understanding of the state of the burnout levels of Turkish English teachers. The preset issues on this study promote the findings to be assessed and could help the literature to provide a deep insight to the increasing challenge – burnout- for EFL teachers working in different levels of schools in Turkey. Nonetheless, it would be appropriate to compare English teacher burnout studies discussed in this study with the studies that have been conducted in previous years in Turkey and other contexts and present the responses to the research questions.

The first research question investigates the burnout examination of Turkish EFL teachers in terms of research foci underlining research results in the studies conducted between 2012 and 2022. Many studies in this review paper sought to determine the distinct factors of burnout among Turkish EFL teachers and attempted to find the association between EFL teachers' burnout levels and distinct causes of burnout, as well as English teachers' goals for avoiding burnout and boosting job satisfaction by utilizing demographic data to investigate the level of teacher burnout experienced by English teachers (Atmaca, 2017; Bal, 2019; Ceylan & Mohammadzadeh, 2016; Demirel & Cephe, 2015; Erdağ & Tavil, 2021; Hismanoğlu & Ersan, 2016; Karanfil & Yeşilbursa, 2021; Kazimlar & Dollar, 2015; Kimsesiz, 2019; Öztürk, 2013).

In her research, Atmaca (2017) found that there was no connection between burnout and the variables gender, marital status, major, educational status, the type of institution, teaching hours, working in the same institution/school, and the number of students, and only a weak correlation between teaching experience and job satisfaction. The findings of Atmaca are different from Öztürk and Ceylan and Mohammadzadeh's studies as well as Deryakulu's (2005) study in which that male teacher was found to have a higher level of burnout than female teacher. On the contrary, many research studies have revealed that gender influences burnout and that female instructors are more emotionally exhausted (Baysal, 1995; Karakoç, 2011; Tuna & Çimen, 2013; Yavuz, 2019).

Also, according to the findings of Öztürk's study, the leading causes of teacher burnout were identified as severe workloads, students, and institutional issues (Öztürk, 2013). Moreover, Ceylan and Mohammadzadeh (2016) discovered that there was a significant relationship between burnout and independent variables of gender, marital status, contract type, total teaching experience in the institution, and weekly course load, and no significant relationship was discovered between burnout and independent variables total teaching experience and monthly income which is also different from the study of Hismanoğlu and Ersan (2016). In their study, a survey of English instructors' burnout in relation to demographic characteristics was conducted, using the Maslach Burnout Inventory as a metric. They discovered a striking link between seniority and subscales of personal success and emotional weariness and there was a strong association between teaching experience and institution and Turkish EFL instructors' burnout and there was a substantial association between monthly salary and living place (a big or small city) and their burnout levels. Also, there was a strong association between these factors regarding department and administrative duties. However, in their study, there was no significant association between age, gender, workload (weekly), or educational background, which is consistent with the study Atmaca (2017).

Regarding burnout levels between state and private universities, Bal (2019) pointed out that the level of burnout among teachers for emotional exhaustion and depersonalization was significant. For these two variables, there was a substantial difference in burnout levels of state and private university lecturers, although there was no significant difference for personal accomplishment. Besides, Kazimlar and Dollar (2015) concentrated on the dimensions of burnout influencing various work environments and discussed that many of the teachers had moderate to high degrees of emotional weariness and depersonalization. Only a quarter of the participants reported a stronger sense of personal success. EFL teachers stating high degrees of burnout, on the other hand, had a considerably unfavorable impression of their working place. The findings of this study are parallel with Cephe's (2010) findings, which confirmed that approximately half of all instructors suffer from burnout. In contrast, the previous research studies demonstrate that English instructors or teachers have a low degree of burnout feelings or very few instructors experience burnout (Güven, 2010; Özgür, 2007). In addition, Maslach's emotional fatigue, depersonalization, and personal achievement elements of burnout were examined by

Khezerlou (2017) who conducted research on EFL instructors in Iran and Turkey. In his study, emotional weariness and depersonalization exhibited a negative relationship with occupational self-efficacy, although personal achievement had a positive relationship among these instructors. Furthermore, while job resentment was a prominent factor in teacher burnout, emotional tiredness was another leading cause of burnout among Turkish EFL instructors.

Regarding experience, the study by Demirel and Cephe (2015) revealed that burnout is more likely to occur at younger ages and in groups with less experience, which is akin to results of Güneş and Uysal (2019). Moreover, Demirel and Cephe's findings of the qualitative data collected through semi-structured interviews unveiled that academic factors such as teaching hours, student proficiency levels, and the instructors' offices, and teaching materials all play a role in the emergence of burnout among instructors. Likewise, Kimsesiz (2019) inquired into teachers' burnout levels concerning school type, which was also examined by Bal (2019) who discovered that working at a primary school has a significant impact on burnout. The data proved that EFL teachers frequently suffer from burnout. Furthermore, it was shown that the kind of school substantially impacted three burnout dimensions. The results show parallelism with Genç's (2016) study, in which the independent factors were not found to be significant (age, gender, and marital status). However, only "the school type" was determined to be important. In addition, the study found a correlation between learned resourcefulness and the dimensions of burnout as learned resourcefulness increases, emotional exhaustion, depersonalization, and personal accomplishment decrease. On contrary to the studies that show a high level of burnout among EFL teachers, Erdağ and Tavi's (2021) study presented very different results and even gave analytical examples of how to deal with burnout. According to them, the participant EFL teachers had a low degree of burnout, and their problem- coping techniques were beneficial to dispose of severe burnout.

Unlike other studies, Karanfil and Yeşilbursa (2021) obtained very interesting findings as a result of their research. The findings of their studies revealed that single teachers reported higher levels of emotional exhaustion than their married or divorced colleagues opposing many studies in which marital status is unimportant (Atmaca, 2017; Özkanal & Arıkan, 2010; Kurtoğlu, 2011; Öztürk, 2013). In addition, teachers at state schools reported higher levels of emotional exhaustion than those at private schools, which is similar to the study conducted by Kimsesiz (2017). However, private school teachers reported a higher sense of personal accomplishment as Kulavuz-Önal and Tatar (2017) stated. A different variable was focused on by Kulavuz (2006) who investigated the relation between burnout and attendance at learning activities among Turkish EFL instructors working in private and public university preparatory programs. The data revealed that public university lecturers had a low feeling of personal accomplishment and attendance in occupational activities.

In addition, three more studies (Köksal et al., 2018; Özkara, 2019; Savas et al., 2014) examined EFL instructors' views toward written corrective feedback, as well as the link between preferences for written corrective feedback, self-efficacy beliefs, teacher efficacy, and burnout levels. According to Özkara (2019), self-efficacy and personal success had a substantial positive link, but emotional weariness and self-efficacy had a negative relationship depending on the findings. However, the findings revealed a negative correlation between emotional tiredness and personal success and between personal accomplishment and depersonalization. Teachers, on average, who were satisfied, had a strong sense of achievement. Furthermore, age had a substantial impact on self-efficacy. Similarly, Savas et al. (2014) indicated that

teacher self-efficacy predicted burnout negatively, which is in accordance with some studies in the literature (Bümen, 2010; Mede, 2009; Saricam & Sakiz, 2014). Moreover, Köksal et al. (2018) showed a correlation between the participants' burnout levels and their preferences for written corrective comments and discovered a link between instructors' preferences for written corrective feedback and their self-efficacy levels. In Ulum's (2019) study, the association between social problem-solving skills and EFL instructors' burnout was investigated. The research demonstrated that those with social problem-solving abilities are less likely to experience occupational burnout.

Moreover, the studies (Deneme, 2021; Güneş & Uysal, 2019; Kulavuz-Önal & Tatar, 2017; Unaldi et al., 2013) scrutinized the association between occupational burnout and the personality traits of Turkish EFL instructors and their participation in professional learning activities. Turkish EFL instructors working at state institutions reported a weaker sense of personal success and participated in less professional learning activities than their counterparts at private universities. Because there was a correlation between instructors' sense of personal accomplishment and their involvement in professional learning activities as suggested by Maslach et al. (2001).

Concerning the burnout scales used by the selected research studies, it is seen that Maslach Burnout Inventory (MBI) was a leading scale which has three sub-dimensions addressing working life. These are Emotional Exhaustion (indicating lack energy, rising unpleasant emotions) (Maslach & Jackson, 1984), Depersonalization (showing negative emotions towards students and school workers due to stress) (Maslach & Jackson, 1981) and Reduced Personal Accomplishment (an individual feeling the emergence of failure for an individual's job gradually) (Maslach & Jackson, 1984). While examining the selected studies, Maslach Burnout Inventory (Maslach et al., 1996) was chosen by 7 research studies and hence, it was the most prevailing scale which involves subdimensions. The other 6 research studies utilized Maslach Burnout Inventory (Maslach & Jackson, 1981). Also, the Occupational Burnout Inventory (Maslach et al., 1986) was applied in one study. Similarly, Maslach Burnout Inventory (Maslach et al., 1997) was employed in another study. Except for Maslach scales, the Teacher Burnout Scale by McCroskey et al. (2001), the Teacher Burnout Scale by Kaner et al. (2008), and the Teacher Burnout Scale by Richmond et al. (2001) were other scales used in the selected studies.

The second research question was to investigate the prime factors experienced by Turkish EFL teachers that cause burnout in the selected studies of this paper. One of the points that attract attention, especially in burnout studies is the creation of demographic information depending on the context. The variables in these studies constitute the common factors that pave the way for the formation of burnout. These are gender, age, marital status, contract type, teaching experience, job dissatisfaction, low self-efficacy beliefs, shareholders, the school's physical environment, and its sociocultural environment, heavy workload, students' attitudes and demands, institutional demands, financial problems, absence of social activities, education policy, total teaching experience in the institution, weekly course load, monthly income, working departments, living area (small or big city), absence of problem-focused techniques, lack of professional learning activities, the type of university and school, feeling psychological pressure, feeling of disappointment, administrative issues, personal characteristics (neuroticism, extraversion, agreeableness, conscientiousness, openness) and low self-esteem, reduced personal accomplishment (positive and negative feelings), depersonalization (caring, seeing students and colleagues as objects or work to do, feeling of being accused), teachers' written corrective feedback preferences, control, lack of rewarding, role of community for fairness and values, academic factors (longer hours of teaching, and lower academic levels of the students), administrative duty and administrative factors (lack of institutional support, academic support of the colleagues, ideal working conditions), lack of professional development activities, working with the same levels of learners and

lack of resourcefulness skills (Atmaca, 2017; Bal, 2019; Ceylan & Mohammadzadeh, 2016; Demirel & Cephe, 2015; Deneme, 2021; Erdağ & Tavi, 2021; Genç, 2016; Güneş & Uysal, 2016; Hismanoğlu & Ersan, 2016; Karanfil & Yeşilbursa, 2021; Kazimlar & Dollar, 2015; Kimsesiz, 2019; Köksal et al., 2018; Kulavuz-Önal & Tatar, 2017; Özkara, 2019; Savas et al., 2014; Ulum, 2019; Unaldi et al., 2013). As seen in these studies, various demographic, professional, and psychological characteristics were explored in burnout research with a diverse group of educators, including academicians based on the burnout feelings of instructors from universities, teachers from high schools, secondary schools as well as primary schools. Apart from these, there are many studies carried out in order to investigate the burnout levels of teachers working in special education and rehabilitation centers and their life satisfaction (Yavuz, 2019), burnout levels of computer teachers (Deryakulu, 2005) and the working conditions of physical education teachers (Cihan, 2011).

In light of all these studies, the studies on burnout in Turkey are generally based on quantitative research methods and there are a few mixed-method studies. This finding proves that the notion of burnout has only been determined in these studies, but any qualitative studies have not been conducted. Therefore, many studies have not concentrated on how the teachers have experienced this problem, and what their thoughts are about the variables listed in all the studies. Also, it is predicted that the Maslach scale, which is used in burnout studies in most quantitative studies, is not a scale containing Turkish context-specific elements, and that survey fatigue may occur as a result of using the same scale. Moreover, since the studies are not based on the long-term, it has not been determined whether burnout notion is a short-term or long-term challenge. Besides these, since the studies have been carried out only in certain regions of Turkey, data covering the whole country might not be obtained. Furthermore, it should not be ignored that studies may create potential bias when they are generally performed in the places where researchers are present. The fact that the demographic information of the participants has not covered different regions has also reduced the generalizability. Overall, the studies selected have not comprehensively emphasized how burnout has impacted the work and private lives of English teachers and how this effect in the future can be reduced or eliminated with education policies to be made in Turkey, and with which strategies English teachers who experience burnout can deal with the burnout effect.

Conclusion & Suggestions

The purpose of this paper is to present a review paper on the studies conducted in Turkey between 2012–2022 and to focus on Turkish EFL teachers' burnout status. Based on the findings of these studies, burnout has been affecting the teaching profession in Turkey and especially English teachers are faced with difficult and stressful situations in their teaching lives even if they are still in their early years of teaching (Kolotoğlu, 2020). Thus, this gradually suffocates their idealism, making teaching English unpleasant and intolerable. All the selected articles present that there are many factors (internal and external) and demographic variables such as age, marital status, years of seniority, gender, and so on, which lead to burnout in Turkey. In fact, the determinants of burnout are regarded to have multifaceted factors (Maslach et al., 2001) as determined in the articles.

Since burnout is common among English language teachers, the studies of Ministry of National Education are vital to support teachers and to provide the best quality of the education. Without teachers' well-being, this cannot be possible. For this reason, the authorities are expected to support teachers and pay attention to in-service trainings to promote healthy lifestyles of teachers. Moreover, the society has an important role to remove the bad attitudes towards teachers and to reform the honor

of the teaching profession in Turkey and help teachers respond to the changing student profiles and increasing expectations with the developing technology.

Suggestions for Future Research

Based on these study findings, there are some recommendations for further studies. As burnout studies mainly adopt quantitative research design, the number of qualitative research studies could be increased in order to obtain deeper insights. The mixed method design studies could extensively present the perspectives of teachers. In addition, the research studies may be expected to offer solution-oriented suggestions and comprehensive studies involving EFL teachers in primary, secondary and high schools across Turkey can be carried out by the Ministry of National Education. Also, the issue of EFL instructors' burnout at universities should also be thoroughly investigated. Including other countries into multidisciplinary and comparative studies can also provide serious determinations on this issue.

Meanwhile, the increasing use of technology in education is undeniable. Even though online teaching platforms and digital resources have become valuable tools in the field of ELT, there are potential challenges and implications for EFL teachers and learners, such as managing technology, maintaining student engagement, and balancing workload. All these might lead to increased work demands. In order to reduce the effects of burnout, coping strategies may be included into teacher training and professional development activities specifically adapted into technology integration and management. In conclusion, further research could delve into the specific challenges faced by EFL teachers in hybrid, synchronous and asynchronous classes and examine efficient strategies to diminish EFL teacher burnout. By addressing the potential difficulties and supportive measures, educational institutions could provide more sustainable English teaching environment for EFL teachers in Turkish context.

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Modern Tools for Distance Education: Information and Analytical Prospectus

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Abstract: The article explores modern tools used in distance education, with the goal of reviewing their benefits and limitations. Relevant definitions of distance education are first discussed in the paper and after, the key provisions of the social constructivism theory in the context of education are presented. Various types of distance education tools, including communication, learning management, content creation, assessment, and artificial intelligence tools are identified in the article, and appropriate provisions of the social constructivism theory that allow for the implementation of these tools are explained. Using the theory of social constructivism as a basis, the article analyses modern distance education tools based on various parameters, including interactivity with peers, interactivity with teachers, engagement, problem-solving, and decision-making. In the article the advantages and disadvantages of using these tools are also examined, their potential to enhance communication, collaboration, and personalised learning, while also acknowledging challenges such as a lack of social interaction, technical difficulties, and pedagogical issues are highlighted. Overall, the article emphasises the need for careful design and regulation to reduce risks and overcome limitations, making distance education a valuable option for both learners and institutions. Teachers and students should work together in order to manage these challenges and take advantage of the benefits provided by these modern tools.

Keywords: distance education, distance education tools, social constructivism, interaction, engagement, decision-making, problem-solving.

Introduction

During the Covid-19 pandemic, educational institutions around the world were forced to switch from face-to-face to distance learning (Grynyuk et al., 2022). Obviously, many teachers and students were not ready for such a radical and unexpected change. There were many technical, technological and methodological challenges. However, experience has shown that the education system as a whole has managed to cope with the problem. Teachers quickly reoriented themselves to the new realities of teaching, mastered new technologies and strategies. Students have become accustomed to teamwork through computer communication, and many of them have been given the opportunity to discover their own creative abilities. Zoom, Google classroom, Microsoft Teams, Moodle, Memrise and many other tools were used on a massive scale. The experience of mass distance learning has become very valuable and is still awaiting comprehensive analysis and research. Part of this process has already begun. Russia's full-scale invasion in Ukraine has emerged as the biggest challenge for the country in its modern history. Students and teachers were once again forced to change their habits and ways of doing things, many of them relocating and changing their study environment. The technical difficulties caused by power outages and internet connection disruptions also took their toll. In this crisis situation, the practice of distance learning during the pandemic was useful. Teachers' methodological skills, multiplied by their experience and desire not to lose contact with their students, were key factors in the effective work. Today, distance education becomes more relevant and it raises the issue of revising the necessary arsenal of technical and methodological tools. It is important considering the modern tools used for distance education in order to understand their advantages and opportunities.

Research Problem

There is also the question of the distance education effectiveness, its ability to ensure students' progress and the development of critical thinking, problem-solving and decision-making skills. A series of studies have been performed on the perception of teachers and students of the situation of distance

learning in universities around the world during the Covid-19 pandemic (Barfi et al., 2023; Hurajova et al., 2022; Poláková & Klímová, 2021; Sayaf, 2023; Shih et al., 2021).

Sayaf (2023) examines the factors that influence student engagement and satisfaction in a distance learning system. Based on the statistical analysis, the author concludes that technical distance learning tools have a positive impact on user satisfaction and engagement in collaborative work. Hurajova et al. (2022) studies the effectiveness of online learning through systems such as Zoom and Google Meet, and individual consultations via email, chat and social media, arguing that modern online technologies contribute to the sustainability of the educational process during an emergency situation. Researchers focus on the positive impact of distance education tools that support communication, collaboration and knowledge building and also maintain students' commitment, motivation, and encourage their sense of responsibility (Berge, 2018). Some studies, however, show that the motivation of teachers and students for asynchronous distance learning is insufficient (Radovan & Makovec, 2022; Taner et al., 2021). Researchers also draw attention to psychological, methodological and technical problems (Grynyuk et al., 2022).

A series of studies have focused on the challenges faced by the educational community in the context of online education (Bhise et al., 2022; Hussein et al., 2020; Jameel et al., 2020; Thompson, 2018). These are primarily challenges related to academic integrity. Researchers note that it can be difficult to monitor and prevent dishonest practices, such as plagiarism or cheating, among students. To avoid worries about the authenticity and reliability of academic work and grades, additional measures are needed. It's important to ensure that students adhere to high standards of academic integrity. Technical difficulties that students may encounter are also noted: limited battery life/charges, connectivity problems, limited storage capacities, small screens or slow text input (Berge, 2018; Sarsar et al., 2020). These factors affect usability and, ultimately, the quality of information acquisition and learning effectiveness. Some researchers suggest combining distance and face-to-face learning (Cleveland-Innes & Garrison, 2020). This approach should ensure the most flexible and efficient education system in modern context.

Research Focus

Based on the results of the literature review, it is noted that the use of distance education tools is a problem that is in the focus of research attention. Some aspects of this complex problem can be clarified through the application of the theory of social constructivism, where modern educational process functions. Interaction, collaboration, and co-construction of knowledge are the fundamental principles of social constructivism that can be implemented through the use of distance education tools. In this context, it is important finding out the mechanisms for realising the principles of social constructivism by distance education. This will benefit to the role of distance education tools in the modern educational paradigm specificity. It will also help to see their place in the arsenal of educational resources of the teacher. It will also help to understand the degree of effectiveness of distance education tools for students' educational outcomes.

Research Aim and Research Questions

The aim of this study is to review modern distance education tools and identify their benefits and limitations. For this purpose, the following research questions are highlighted:

1. What types of modern distance education tools are used by Ukrainian teachers?

2.What principles of social constructivism are realised by distance education tools?

3.What are the benefits of using modern distance education tools for participants in the educational process?

4.What are the limitations for students and teachers of their use?

Research Methodology

General Background

The methods of observation, analysis and synthesis are used in the paper. Based on the key research, the most relevant definitions of distance education are presented. Using social constructivism and guided by it, several important online tools that facilitate interaction at the student-teacher and student-student levels are identified. It was accomplished by analysing communication tools, learning management systems, content creation tools, assessment tools and Artificial Intelligence for their potential to facilitate meaningful dialogue between students and teachers. The advantages for students and teachers arising from the use of distance education tools are discussed. The limitations of using distance education tools that participants in the educational process may face are specified.

Research Results

Considering several definitions of distance education, Moore (2018) defines distance education as “teaching and planned learning where the teaching normally occurs in a different place from learning, requiring communication through technologies, as well as special institutional organisation” (Moore, 2018). Another definition of distance education is as follow: a mode of educational provision, characterised by the physical separation between the student and the teacher. It can be synchronous where both coexist at the same time in the educational process, or asynchronous when the student defines his own time, space and rhythm of study independently of the teacher (Bandeira & Cardoso, 2021). Similar to the above is the definition of distance education as a type of education where technical communication tools bring instructors and learners together, who are physically separated from each other during teaching. In other words, it provides an open, distance and flexible education where learners are free from the constraints of the time and place (Goksel & Karadeniz, 2022). It is visible that the given definitions emphasise three key factors that outline distance education, namely: the distance between the teacher and the student in space, the distance in time and the availability of technical learning tools.

The use of technical learning tools in the context of social constructivism theory opens up new opportunities for both teachers and students. Social constructivism is a theoretical concept that focuses on the role of social and cultural factors in shaping the process of learning and knowledge acquisition. According to this concept, learning is not only an individual activity, but rather a cultural participation process where learners are engaged with the practical activities of their community in order to acquire relevant knowledge, with the support of their cultural environment. Knowledge is not only generated through the interaction of individuals with the physical environment but also through the interactions that take place in a social and cultural context. This means that the creation of knowledge is influenced by the social and cultural dynamics that occur within a given community. In a classroom setting, students primarily learn through their interactions with their peers and teachers. Teachers facilitate this learning process by stimulating and encouraging conversations in the classroom. These processes enable students constructing new knowledge and understanding through the exchange of ideas and

perspectives. Social constructivism recognises the role that social and cultural factors play in shaping the learning process, and highlights the importance of cultural participation in the acquisition of knowledge.

Actually, social constructivism in pedagogy is considered to be an educational model based on the concept of cognitive development by J. Piaget, the theory of social development by L. Vygotsky, and the theory of pragmatism by J. Dewey. The studies of Grooms (2000), Long (1983), and Moore (1989), demonstrate that according to the constructivist concept, a student interacts with three main components of learning - content, teacher and peers. The process of intellectually interacting with content "is a defining characteristic of education" because "that results in changes in the learner's understanding, the learner's perspective, or the cognitive structures of the learner's mind" (Moore, 1989). When teachers interact with learners, their impact on learners is stronger and more frequent than when learners interact with content alone. In preparing material for student-content interaction, teachers can create materials that motivate, present information, help learners apply what they have learned, assess their progress, and even provide some emotional support. "The instructor is especially valuable in responding to the learners' application of new knowledge", – argue Moore (1989). Indeed, self-directed students can motivate themselves and engage with the presented content, but they are at risk when it comes to applying what they have learned. They may not have enough knowledge of the subject matter to ensure that they apply it correctly, they may also be unsure of all the possible ways in which they can apply what they have learned. In such cases, the interaction with the teacher is extremely valuable to provide feedback and practice checks. Student-to- student interaction is an extremely valuable resource for learning. The level of self-management that students possess makes this process successful, and helps recognising and encouraging the development of their experience.

Critical in this process is recognising the shifting role of the teacher who becomes the content facilitator and is no longer the content provider. The student's role also has changed from being a passive receiver of information to an active participant in the knowledge-making process. A constructivist approach recognises that students do not learn within the constraints of a local educational institution, but rather in the wider international and global context of their personal lives, enhanced by social media and various technologies. Consequently, the boundaries between the university and the larger community become blurred, creating its own unique set of opportunities and challenges.

The concept of social constructivism highlights the significance of interpersonal interaction and discussion in facilitating effective teaching and learning. The focus is on students' understanding of the discussed ideas, and the knowledge is created through the process of discovery and investigation of problems. Knowledge is not something that is found, but rather something that is constructed or made. Instead of merely receiving information, learners seek meaning from various sources of information and engage in discussions with others. In this regard, teaching practices shift from traditional modes of transmission, such as lectures, to more collaborative, problem-based, and experiential approaches to learning. In an attempt to make sense of the given experience, concepts, models and frameworks were created. These designs based on new experiences, improving the understanding of the world around us were constantly tested and modified. The key points of social constructivism that are important for this study are as follows:

- Learning is a learner-centered process;
- Knowledge is co-constructed during interaction with other people;

- Interaction and collaboration have important role in the learning process;
- Learner must be engaged in the learning process (Brown, 2014; Long, 1983; Moore, 1989).

Social constructivism often refers to a collaborative learning since it is centered around interaction, discussion, and sharing of knowledge among students (Moore, 1989). This teaching approach enables a variety of interactive methods to be used, such as whole-class discussions, small group discussions, or students working in pairs on tasks or projects. The fundamental principle behind this theory is that learners work together in groups, sharing ideas and engaging in brainstorming sessions to discover cause-and-effect relationships, solutions to problems, or new ways to add to existing knowledge. By collaborating in this way, students can learn from one another, build upon each other's ideas, and develop a deeper understanding of the subject matter.

Based on the theory of social constructivism, modern distance education tools according to the following parameters are analysed:

- Interactivity with peers;
- Interactivity with teacher;
- Engagement;
- Problem-solving and decision making.

Modern tools used for distance education are reviewed in the paper. The tools are divided into categories such as communication tools, learning management systems (LMS), content creation tools, assessment tools and artificial intelligence (AI). The use of these tools in distance education are also discussed. The evaluation commences by communication tools such as video conferencing software and instant messaging apps. Video conferencing software allows students and teachers engaging in real-time, face-to-face communication. Some examples of video conferencing software include Zoom, Skype, Webex, and Google Meet. Zoom, Webex, and Google Meet offer features such as screen sharing, breakout rooms for small group discussions, and recording of sessions. Breakout rooms are a useful tool for students to collaborate with each other. This ensures the effectiveness of distance learning “where students engage each other with group projects designed to create and foster the reliance of team members upon each other” (Brown, 2014). These tools are often used for virtual classes and lectures, where teachers can share their screens and present course materials to students. They also provide a virtual whiteboard, useful for collaborative work in the context of social constructivism. Moreover, Zoom, Webex, and Google Meet allow using real-time subtitles. Skype, on the other hand, enables screen sharing and recording of sessions but does not offer breakout rooms or a virtual whiteboard.

Communication tools also promote student – student and student – teacher interaction. These tools enable students communicating with their teachers and peers, participating in group projects, and receiving feedback from their instructors. Furthermore, communication tools empower teachers to provide personalised feedback to students, thus improving learning outcomes. During this collaborative learning process, they must negotiate, make sense of and find solutions to problems through a shared understanding. In this way, education moves from a single, solitary search for knowledge to a collaborative learning community that shapes and informs responses to the environment.

Instant messaging apps such as Slack and Microsoft Teams are commonly used in distance education in order to facilitate the real-time communication among individuals or groups. These apps

allow students communicating with their teachers and peers, participating in group projects, and receiving feedback from their instructors. Slack and Microsoft Teams have features such as chat rooms, channels, and direct messaging that enable students and teachers to effectively communicate. They also allow for the sharing of documents and files, making collaboration on projects easier. These apps also offer video and audio calling features, which can be useful for virtual meetings and discussions.

One of the key advantages of using instant messaging apps in distance education is that they provide a platform for ongoing communication outside of scheduled class times. This helps students feel more connected to their peers and teachers, and makes for a more engaging and interactive learning experience. Instant messaging apps are valuable tools for building communication, collaboration, and community in distance education.

The use of learning management systems (LMS) has revolutionised the education by providing a range of powerful tools that facilitate the delivery and management of educational content. Several types of LMS are available to educators, including Google Classroom, Moodle, Canvas, and Blackboard. The introduction of LMS has had a significant impact on the way teachers create, share and monitor learning content, leading to increased efficiency and effectiveness of teaching methods.

Google Classroom, Moodle, and Blackboard promote student – student collaboration and student – teacher communication. Google Classroom allows for some interactivity with teachers and peers through features such as class comments and private messaging. However, its collaboration capabilities are somewhat limited. Moodle provides a range of collaboration tools such as forums, wikis, and group activities, which encourage interaction between peers. It also supports virtual classroom tools like BigBlueButton for live instruction. Blackboard also offers a variety of communication tools, such as discussion forums and group projects, that help you collaborate and interact with your teachers and peers. This collaborative learning approach has been shown to improve critical thinking skills and promote the development of soft skills such as communication, teamwork, and problem-solving.

Canvas is an LMS that is widely used by many universities around the world. It has a variety of features such as rubric creation, module creation, calendar development, assessment options, curriculum upload, data analytics, and much more. Additionally, Canvas can be integrated with various other technologies like Google Classroom, Microsoft Teams, Zoom, and others to create a single learning platform. With Canvas, teachers can communicate with their students individually, in groups, or with the entire class using messaging, audio notes, video, and other communication tools. Students can also collaborate with one another through chat groups, video, and other messaging tools.

An LMS has a number of benefits that include the ability to provide a flexible and personalised learning experience for students. LMS help teachers creating and customising online courses that offer different learning styles and levels. With LMS, students can learn at their own pace, and teachers can provide immediate feedback on assignments and tests. This personalised learning approach has been proven to improve student outcomes and increase student engagement. When students collaborate in different types of learning activities using LMS, they bring different perspectives and experiences to each situation, often creating multiple points of view, which is the core constructivist approach to learning.

Another significant benefit of LMS is its ability to centralise and streamline tasks. LMS can automate many administrative tasks, such as grading and tracking student progress, allowing educators to focus on teaching and engaging with students. In addition, LMS give teachers valuable information

about student progress, which can be used to make educational decisions and improve the overall quality of education.

Content creation tools are software applications that enable educators to build and share learning material in a variety of formats, including text, images, audio, and video. In distance education, content creation tools increasingly become important as teachers seek to provide engaging and interactive learning experiences for their students. The most popular tools among teachers and students are Camtasia, Audacity, and Articulate Storyline. It is a video recording and editing software that allows teachers generating and managing a video content for their courses, produce podcast-style lectures and self-study modules. Camtasia, Audacity, and Articulate Storyline are effective tools for creating instructional videos, demonstrations, and lectures. They also support screen capture, audio recording, and adding annotations and animations. Content creation tools are easy to use and demand minimal technical knowledge, which is an advantage. They enable teachers to provide engaging and interactive learning content that can be accessed remotely and on demand. By using content creation tools in social constructivism context, educators can adapt their teaching approach to the unique learning preferences and styles of each student. In addition, content creation tools give teachers the flexibility to modify and update course materials in real time, which is vital in fast-paced fields where information is constantly changing.

Assessment tools play a critical role in helping teachers evaluate student learning outcomes. Platforms like Google Forms, Blackboard, Moodle, QuestionMark, and ProProfs provide teachers with tools to monitor student progress, offer timely feedback, and adapt their teaching strategies as necessary. These tools are applied in various ways during distance learning, including online quizzes and tests, assignments and projects, and peer assessment.

Online quizzes and tests are commonly used in order to evaluate student knowledge and application of concepts. They can be timed or untimed and can be automatically graded, which allows teachers assessing student performance efficiently. Online quizzes and tests also enable to offer immediate feedback to students, enhancing the learning experience. However, there are limitations to online quizzes and tests, including the possibility of cheating and the inability to evaluate higher-order thinking skills like critical thinking and problem-solving.

Assignments and projects, on the other hand, are designed to assess higher-order thinking skills such as analysis, synthesis, and evaluation. They also encourage active learning and student engagement by providing opportunities to demonstrate knowledge and skills in various formats, including written papers, presentations, and multimedia projects. The limitations of assignments and projects, moreover, are the possibility of plagiarism, the difficulty of evaluating subjective content, and the time required to provide feedback. The peer assessment is used to evaluate group projects, presentations, and other assignments. It helps students to develop critical thinking and evaluation skills while facilitating collaborative learning. Additionally, teachers can assess how effectively students work together and communicate during peer assessment.

Nowadays, the prospects for developing tools for distance education are associated with artificial intelligence (AI). The main purpose of employing AI in education is to help improving the teaching and learning in classrooms because AI help instructors with teaching, classroom work, evaluation, as well as help students to learn (Jameel et al., 2020; Shen et al., 2021).

AI technology is widely used in such educational tools as AI-enabled learning management systems, Chatbots for Virtual Tutoring, AI translators, and personal learning. In distance education, AI

is used to improve the learning process by personalising the content and pace of learning to students' individual needs. A well-designed and user-friendly AI-based learning tool is able to track the pace of learning, academic performance, and identify gaps in students' knowledge. By customising the learning process based on a student's individual learning style, preferences, and needs, AI tools provide personalised learning schedules and content recommendations that help students become more effective in their studies. The AI system can adapt, learn and comprehend knowledge based on performance, and guide students' work. This increases the system's knowledge base, creating a more powerful AI learning environment. The use of AI also provides teachers with valuable information about subjects that require more attention, enabling them to optimise their teaching strategies and achieve the desired learning outcomes (Shen et al., 2021).

Another potential application of AI in distance education is the use of chatbots. Chatbots are programmed to answer frequently asked questions, provide feedback on assignments, and offer guidance on how to improve performance. Chatbots like ChatGPT, Brainly, My Study Life have been used as conversational agents. The use of AI-based chatbots as pedagogical agents has proved to be highly effective in educational settings. Google Duplex and AI-based WhatsApp chatbots use AI technology to offer personalized assessments, problem-solving, and content recommendations for students studying at home. These chatbots also encourage students to complete tasks quickly.

Conversational chatbots have a range of advantages in the education environment, including their ability to provide instant accessibility and respond naturally, much like an interview. They facilitate easy-going interactions with students, helping to support engagement, as well as to set learning and engagement goals, strategies, and outcomes. Chatbots also offer a dedicated and unique learning environment for students to ask questions in the absence of teacher. Chatbots answer basic and frequently asked questions from large amounts of big data. They analyse data collected during student interactions to help teachers improve the learning process and student experience. This is a valuable source of information that can be used to identify aspects that need improvement and enhance the overall learning experience. AI chatbots help students prepare for exams by offering practice questions and quizzes. They also track a student's progress and give feedback on subjects that the student needs to focus on more. Artificial intelligence is used to automate administrative tasks such as grading and assessment, freeing up teachers' time to focus on more meaningful tasks such as designing learning content. AI can play an important role in the administration of online exams.

There are also some worries about the use of AI. For instance, there are concerns that AI could completely replace teachers, which could have negative consequences for the quality of education and the role of teachers in the education system (Sethi et al., 2021; Shen et al., 2021). Currently, this fear seems to be somewhat early. Because AI is not able to create an emotionally comfortable ambience, which is one of the keys to a successful class. AI's capabilities are limited in terms of getting students interested in the topic at hand or responding to instant requests from students during a group lesson. While AI has many benefits, it is important to consider potential risks and work to reduce them. This necessitates careful design and regulation of AI systems to ensure they are safe, reliable, and ethical.

So, the main theses of the social constructivism theory can be considered as: learning is a learner-centered process, knowledge is co-constructed during interaction with other people, interaction and collaboration have important role in the learning process, learner must be engaged in the learning process. Their implementation through distance education tools were also discussed. The types of tools for distance education in their correlation with the principles of social constructivism are presented in the table below (Table 1).

Table 1

Tools for Distance Education and Their Correlation with the Principles of Social Constructivism

Types of distance education tools	The principles of social constructivism
Communication tools	
Zoom, Webex, Google Meet	Interaction with teacher Interaction with peers Engagement
Skype	Interaction with teacher Engagement
Instant messaging apps (Slack, Microsoft Teams)	Interaction with teacher Interaction with peers Engagement
Learning management systems (LMS)	
Google classroom	Interaction with teacher (limited) Interaction with peers (limited) Engagement Problem-solving and decision making
Moodle, Canvas, Blackboard	Interaction with teacher Interaction with peers Engagement Problem-solving and decision making
Content creation tools	
Camtasia, Audacity, Articulate Storyline	Interaction with teacher Engagement
Google Forms, Blackboard, Moodle, QuestionMark, ProProfs	Interaction with teacher Engagement
Artificial intelligence (AI)	
Conversational chatbots ChatGPT, Brainly, My Study Life	Engagement Problem-solving

Source: authors' own research.

It can be concluded, the presented tools for distance education are able to implement the basic principles of the theory of social constructivism. The most suitable are LMS as integrated platforms that cover interaction at the student-teacher and student-student levels, and simultaneously implement the tasks of engagement, problem-solving and decision making. Communication tools, Content creation tools and Assessment tools perform the tasks of interaction and engagement. AI has the ability to solve teaching tasks related to engagement and problem-solving.

Discussion

As we can see, the crucial types of distance education tools able to effectively implement the main principles of social constructivism such as interaction, communication, engagement, problem-solving and decision making. The use of Communication tools, LMS, Content creation tools and AI demonstrates its effectiveness if teachers are well thought out and planned in their use. The positive impact of distance education tools is also rightly emphasised by colleagues from different countries (Brown, 2014; Radovan & Makovec, 2022; Sayaf, 2023). In particular, Radovan and Makovec (2022) conclude that "during distance learning, cooperation between the teacher and the students and between the students themselves should be encouraged".

The benefits of modern tools for distance education are discussed in terms of student learning outcomes, teacher effectiveness, and institutional management. Learning can be facilitated through

various communication and collaboration means, allowing students sharing data in real-time or asynchronously using different media formats like images, sound, and video recordings. It can also boost students' commitment, motivation, and sense of responsibility while promoting individualised, social interactive, and contextualised learning. Sayaf (2023) comes to similar conclusions, arguing that “peer interaction, interactive lectures ... are the characteristics that influence users' satisfaction and collaborative behavior of distance learners”. With the use of their familiar devices, learners can often reduce cognitive load and enhance their problem-solving skills by accessing information when and where they need it. It demonstrates the advantages of learning in supporting students' growth and development. On the other hand, there are studies that demonstrate the difficulty of students' perception of distance education if this process is continuous and takes a long time. Thus, Taner et al. (2021) conclude that distance education could not provide the motivation of undergraduate students and expectation of students should be taken into account in the distance education process. Such results should not be ignored, and ways should be found to overcome the difficulties that arise. One of these ways is to provide teachers with thorough methodological training and to provide them, as well as students, with appropriate technical learning tools.

Modern tools for distance education enhance teacher effectiveness by providing them with a wide range of tools and resources able to create engaging and interactive learning experiences. Teachers can use these tools to create personalised learning content adapted to individual student needs and learning styles, as well as to monitor student progress and provide timely feedback. The use of modern tools also allows teachers tracking student engagement and adjust their teaching strategies as needed. By using these tools, teachers can provide a more personalised and effective learning experience for their students.

Institutional management also benefits from the use of modern tools for distance education. By offering distance learning courses, institutions can reach a wider audience and attract students who may not have been able to attend traditional on-campus classes. This can result in increased enrollment and revenue for the institution. Distance education tools also help institutions to streamline administrative tasks, such as grading and record-keeping, and to reduce costs related to physical classroom space and materials.

However, there are also some limitations to these tools. One of the primary limitations is the pedagogical challenge of adapting teaching strategies to the online environment. In traditional face-to-face learning, teachers rely on non-verbal signals and feedback to engage students and adjust their teaching strategies. In an online environment, teachers do not have access to these signals and must find alternative ways to engage students. In addition, students may have different learning styles and require different types of support to succeed in an online environment. Teachers need to adapt their teaching strategies to take these differences into account.

Another limitation may be the lack of social interaction and collaboration among students. In a physical classroom, they interact, ask questions and work on group projects. In the online environment, students may feel more isolated and disconnected from their peers, which can impact their motivation and engagement (Barfi et al., 2023; Taner et al., 2021).

There are also some technical limitations in distance education, such as the small screens, slow text input on devices, limited battery life, insufficient storage capacity of devices, connectivity problems. Several ways to overcome the limitations of distance education tools can be used:

The responsive design. Distance education programs have used responsive design in their course materials to adapt the content to the screen size of different mobile devices. This allows students accessing course materials on mobile devices without compromising the readability and usability of the content.

- Collaboration tools. Able to overcome the lack of social interaction and collaboration, distance education programs have incorporated collaboration tools such as discussion forums, group projects, and virtual classrooms.

- The cloud-based storage. To address the limited storage capacity of mobile devices, distance education programs have used the cloud-based storage solutions such as Google Drive or Dropbox. This allows teachers and students to store and access course content without taking up space on their mobile devices.

- Training and support. Distance education programs have provided training and support to teachers and students on how effectively use learning mobile devices. This includes providing tutorials, resources, and technical support to help them navigate the limitations of their devices.

Conclusions and Implications

Distance education offers new opportunities for individual and collective learning. With the tools for distance education, teachers incorporate key concepts of social constructivism into the learning process, such as collaboration, co-construction of knowledge, engagement, problem solving and decision-making. Communication tools like video conferencing software and instant messaging apps are essential for group projects, and peer-to-peer collaboration in distance education. Learning management systems like Google Classroom, Moodle, Canvas, and Blackboard offer various features that facilitate the presentation and management of educational content, improve the critical thinking skills, and promote soft skill development. The content creation tools, such as Camtasia, Audacity, and Articulate Storyline, allow teachers creating and offering educational materials in various formats, including video, podcast-style lectures, and self-study modules. Assessment tools, such as online quizzes, tests, and assignments, are used to evaluate student learning outcomes and facilitate collaborative learning.

Today, AI is the most promising tool for distance education. Artificial intelligence is increasingly used in distance education to personalise learning to individual student needs. AI-based learning tools monitor students' progress and identify knowledge gaps to provide personalised study schedules and content recommendations. Chatbots provide personalised support by engagement and using problem-solving tasks. But AI cannot replace live interaction with a teacher and other students.

While these modern tools for distance education have many benefits, there are also challenges. Adapting teaching strategies to the online environment and addressing the diverse needs of learners can be difficult. The lack of social interaction and collaboration among students is also a limitation. Technical issues such as small screens, limited battery life, and connectivity problems affect the effectiveness of distance education. Responsive design, collaboration tools, cloud-based storage, and training and support help overcome these limitations.

In conclusion, in the article the benefits and limitations of modern tools for distance education are highlighted. The use of these tools facilitate the communication, collaboration, and personalised learning, improve student motivation and problem-solving skills. However, there are also challenges

that need to be addressed. A careful design and regulation can help reducing risks and overcoming limitations, making distance education a valuable option for learners and institutions.

Modern distance education tools have changed the way education is provided and obtained. The benefits of these tools are evident in the success of various distance education programs. However, limitations still exist, and there is room for improvement. The future of distance education is promising, and modern tools will undoubtedly play a crucial role in shaping it.

Suggestions for Future Research

Based on the proposed research, several main prospects for further research can be identified. In the context of pedagogical strategies, it is advisable to investigate specific pedagogical strategies that can be implemented together with distance education tools in order to overcome the limitations and challenges identified in this article. Exploring innovative approaches that can improve social interaction, collaboration and collaborative learning in a digital learning environment is of great importance. It is interesting analysing the implementation of project-based and problem-based learning in the context of distance education; to find out how these pedagogical strategies can be facilitated by collaborative tools, online simulations and virtual laboratories. The impact of these approaches on learners' problem-solving, critical thinking and application of knowledge in real-world situations is worth examining.

The analysis of distance education tools also suggests the need for a comparative study of distance education tools in different educational contexts, such as higher education institutions and vocational training programmes. One more prospect is to investigate how the effectiveness of these tools depends on factors such as age group, subject, learning objectives and specific needs of learners. Such research would help determining which tools are best suited for specific educational settings.

Synchronous and asynchronous interaction is an important educational factor. In this context, it is worth exploring the optimal balance between synchronous and asynchronous interaction in distance education, finding out how live video sessions, chat platforms and virtual classrooms can facilitate the real-time communication and collaboration between learners, as well as between learners and teachers. In addition, explore the benefits of asynchronous communication tools such as discussion boards and email, which provide flexibility in the learning process.

In terms of learning analytics, it is important to perform a comparative analysis of distance education tools. Specifically, to explore how the data generated by these tools, such as learner engagement, progress, and performance, can be analysed to identify patterns and correlations. The impact analysis of different tools on categories such as student engagement, problem solving and decision making is of great importance.

Finally, the ethical implications of using AI in distance education become a polemic topic. Issues related to data privacy, algorithmic bias, and potential impacts on student well-being should be explored. To explore the ways to address these issues and develop guidelines or policies to ensure responsible use of technology in distance education is one of the main tasks for the future researches.

These research perspectives can help to further develop distance education, address its current limitations, and develop and implement effective tools and strategies for online teaching and learning.

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