

Psycholinguistic dimensions of personal interaction between subjects of educational space in the context of the COVID-19 pandemic

Dimensões psicolinguísticas da interação pessoal entre sujeitos do espaço educativo no contexto da pandemia COVID-19

Dimensiones psicolingüísticas de la interacción personal entre los sujetos del espacio educativo en el contexto de la pandemia del COVID-19

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ABSTRACT

The study aimed to analyze the psycholinguistic dimension of the personal interaction of the subjects of the educational space in the conditions of the COVID-19 pandemic. For this purpose, a model was built to assess the influence of distance learning in an electronic environment or other unconscious forms on the effectiveness of school education. Through the study, the main factors influencing the effectiveness of learning at the school, class, and individual level (students, teachers, and parents) were identified and analyzed. A logical assessment framework model was created linking the resource provision of the educational distance process, organization and flow of learning processes, accessibility of the system of adaptation, and support for learning and achievement of results for students, teachers, parents, and school. The study provides an opportunity for a broader diagnosis of the effectiveness of education in the education system. It can facilitate data-driven

decision-making to ensure adaptability and improve the effectiveness of the educational process to reduce inequality, ensure equal opportunities for quality education, ensure the sustainability of acquired knowledge and skills, and reduce the risk of dropping out of school in the context of the COVID-19 pandemic.

Keywords: Covid-19 pandemic conditions. Personal interaction subjects of educational space. Psycholinguistic dimensions.

RESUMO

O objectivo do estudo era analisar a dimensão psicolinguística da interacção pessoal dos sujeitos do espaço educativo nas condições da pandemia COVID-19. Para este efeito, foi construído um modelo para avaliar a influência do ensino à distância num ambiente electrónico ou outras formas inconscientes na eficácia da educação escolar. Através do estudo, foram identificados e analisados os principais factores que influenciam a eficácia da aprendizagem a nível escolar, escolar e individual (alunos, professores, e pais). Foi criado um modelo de quadro lógico de avaliação ligando o fornecimento de recursos do processo educativo à distância, organização e fluxo de processos de aprendizagem, acessibilidade do sistema de adaptação, e apoio à aprendizagem e obtenção de resultados para estudantes, professores, pais, e escola. O estudo oferece uma oportunidade para um diagnóstico mais amplo da eficácia da educação no sistema educativo. Pode facilitar a tomada de decisões com base em dados para assegurar a adaptabilidade e melhorar a eficácia do processo educativo, a fim de reduzir as desigualdades, assegurar a igualdade de oportunidades para uma educação de qualidade, assegurar a sustentabilidade dos conhecimentos e competências adquiridos, e reduzir o risco de abandono escolar no contexto da pandemia covid-19.

Palavras-chave: Condições pandémicas COVID-19. Dimensões psicolinguísticas. Temas de interacção pessoal do espaço educativo.

RESUMEN

El objetivo del estudio fue analizar la dimensión psicolingüística de la interacción personal de los sujetos del espacio educativo en las condiciones de la pandemia del COVID-19. Para ello, se construyó un modelo para evaluar la influencia del aprendizaje a distancia en un entorno electrónico u otras formas inconscientes en la eficacia de la educación escolar. A través del estudio, se identificaron y analizaron los principales factores que influyen en la eficacia del aprendizaje a nivel escolar, de clase e individual (alumnos, profesores y padres). Se creó un modelo de marco lógico de evaluación que vincula la provisión de recursos del proceso educativo a distancia, la organización y el flujo de los procesos de aprendizaje, la accesibilidad del sistema de adaptación y el apoyo al aprendizaje y al logro de resultados para los estudiantes, los profesores, los padres y la escuela. El estudio ofrece la oportunidad de realizar un diagnóstico más amplio de la eficacia de la educación en el sistema educativo. Puede facilitar la toma de decisiones basada en datos para garantizar la adaptabilidad y mejorar la eficacia del proceso educativo con el fin de reducir la desigualdad, garantizar la igualdad de oportunidades para una educación de calidad, asegurar la sostenibilidad de los conocimientos y habilidades adquiridos y reducir el riesgo de abandono escolar en el contexto de la pandemia del COVID-19.

Palabras clave: Condiciones de la pandemia COVID-19. Dimensiones psicolingüísticas. Temas de interacción personal del espacio educativo.

INTRODUCTION

The global pandemic caused by the COVID-19 virus has had a devastating and profound effect on all aspects of human life. It has affected where we can go, how we can get there, who we can meet (and how close we can get to them), and, consequently, how we learn and study. At some point during the pandemic, more than a billion students, representing more than 98% of the world's

student population, were affected by school closures that were intended to reduce the spread of the virus (UNESCO, 2020a). So, teaching and learning have moved from a physical, in-person (or face-to-face) environment to a virtual, online learning environment UNESCO IITE (2021, July 14).

This has led to enormous challenges for language teachers and learners. While English teachers and learners have faced many of the same challenges as their peers in other disciplines, there are problems specific to language education. For example, student-teacher interaction is viewed by many as an integral part of language learning (Walsh, 2013), but it functions very differently online. Therefore, teachers require specific competencies to facilitate and facilitate interaction in online language lessons (Cheng, 2021a).

Salcedo-Lagos et al. (2021) found in their study the latent mental vocabulary of teachers, finding significant differences in perception and domain of knowledge.

Psycholinguistics (Greekpsyche- soul and French linguistique - science of language) is a science that studies the processes of formation, perception, and formation of speech in their interaction with the language system, and also develops models of speech activity and psychophysiological speech organization of humans tests them in the process of psychological experiments

Therefore, psycholinguistic dimensions of personal interaction of subjects of educational space in the conditions of pandemic COVID-19 are becoming an increasingly relevant topic and require research.

LITERATURE REVIEW

Shmatkov et al. (2021) argue that psycholinguistic variables such as readability, imagery, concreteness, conceptual familiarity, semantic size, name consistency, image consistency, visual complexity, typicality, image variability, textual authenticity, smooth processing, etc., penetrate deeply related studies of crealized text in different forms and interpretations. The quality of Facebook posters created by official institutions working in the field of health care is on the border between average and high level.

Diseases associated with coronavirus-19 and their consequences (APS 2020; Hawryluck et al., 2004; Horesh and Brown 2020; WHO 2020a, b) are forcing changes in how we perceive and evaluate our perceptions, how we understand and are understood by our environment, and how we interact with each other.

Since its worldwide spread and subsequent declaration as a pandemic in early 2020, Covid-19 has had a major impact on all aspects of human life in both developed and developing countries. One of the many measures taken by governments around the world to contain the virus was quarantine. Quarantine has affected all aspects of life, including education in many countries.

The problem of psychologically analyzing the impact of non-institutionalized education on young children has not been fully explored. Despite some achievements of scholars, today new issues are on the agenda, in particular non-institutionalized media educational strategies, models, methods and technologies that can most effectively prepare the new generation for life in modern information conditions, how effective they are in revealing the personality of young people (Maksymenko, 2020).

However, psychological dimensions of destructive interaction between subjects of non-institutionalized educational space, including cyberspace, as Shatyko (2019) argues, can manifest in very different ways, such as such manifestations of cyberbullying as bullying and harassment.

Zasiekina (2021) argues that depression is an independent significant factor in students' psychological well-being. Considering anxiety and loneliness as the main problems that students identified in their pieces, as well as social anxiety, which in the inability to improve change during the pandemic, the resource was aimed at reducing these negative emotional states. The online resource corresponding to the three blocks was named T (anxiety) D (depression) C (loneliness).

Yue Su et al. (2020) in their study found that people focused more on “home” and revealed higher levels of cognitive processes after quarantine. They also found that in Lombardy. At the same time, stress levels decreased and attention to rest increased in Lombardy after the quarantine. Attention to group, religion, and emotions became more prevalent in Wuhan after quarantine.

Catherine Davis, Alexandra Hendry, Shannon P. Gibson, Theodora Gliga, Michelle McGillion, and Nayeli Gonzalez-Gomez used data from parent reports from 189 families living in the United Kingdom and examined associations between time spent in ECEC by children 8 to 36 months, their socioeconomic background, and growth in speech and executive function from spring to winter of 2020. Growth in receptive vocabulary was greater for children who continued to attend ECEC during this period, with a greater positive effect for children from less advantaged families. Increases in cognitive-executive function (CEF) contributed to ECEC attendance over the period regardless of socioeconomic background. Their findings underscore the importance of quality ECEC for key skills development and for equalizing socioeconomic inequalities (Catherine Davis, 2021).

METHODOLOGY

The research methodology was developed using elements from (1) learning activity theory (Creemers & Reezigt, 1996, 1997; Creemers & Kyriakides, 2007), (2) the model for the production function of education (Hanushek 2020; Levin, 2000), as well as (3) numerous educational psychology theories related to commitment and achievement motivation (Expectancy-value theory, Eccles & Wigfield, 2002) to identify and analyze factors that contribute to educational process effectiveness at a distance. The identification of these factors and their influence can contribute to specific decisions related to resources, teacher training, and professional development, the use of effective teaching methods, the organization and management of virtual classroom processes, etc., and ultimately contribute to certain educational outcomes in the future offering of online and blended/hybrid forms of learning.

For the study, a specific framework tool was developed to assess the impact of distance learning in an electronic environment or other non-conscious forms. It is the result of a thorough review and analysis of available theoretical models and empirical research to identify and adapt appropriate quantitative and qualitative thematic tools that (a) assess various aspects of distance learning, affect teaching and learning effectiveness and lead to specific outcomes for students, teachers, and schools, and (B) encompass high standards of quality in terms of validity and validity and allow assessment of various aspects of the educational process. Specific (variable) factors at the student, teacher, and school-level were identified for which strong evidence was found in educational effectiveness research to be related to student achievement.

These factor variables have been modified to fit the specifications of distance learning in an e-learning environment. However, consideration should be given to the fact that while many of the indicators in the study practically reflect general characteristics of distance learning schooling and allow general conclusions to be drawn about schooling regardless of the particular form of educational delivery (eye or distance in an electronic environment).

RESULTS

Distance education theories point to the importance of learner-content interaction and discuss it in conjunction with learner-teacher and learner-student interactions. Indicators of student-content interaction are inconsistent and often measure only student-student and student-teacher interaction (Sandra Thatcher Powell & Heather Leary, 2021).

The results show that there are many different measurement tools in use, showing a wide variety of measurement elements. Most of the tools have been developed for specific cases and have not been created from other relevant tools. A universal tool for measuring learner-content

interaction must be proactive; have a strong pedagogical foundation, learner engagement, motivation, and involvement; and measure a variety of learning experiences.

The survey was conducted in 2020 among 35 schools across the country. It included 448 students in grades V-XII, 806 parents, 876 teachers, and 126 principals. Elementary school students (grades I-IV) were not included because of the specifics of the instrument, but data on distance learning in the electronic environment and other forms at the initial stage were collected by studying the opinions of the parents of these students.

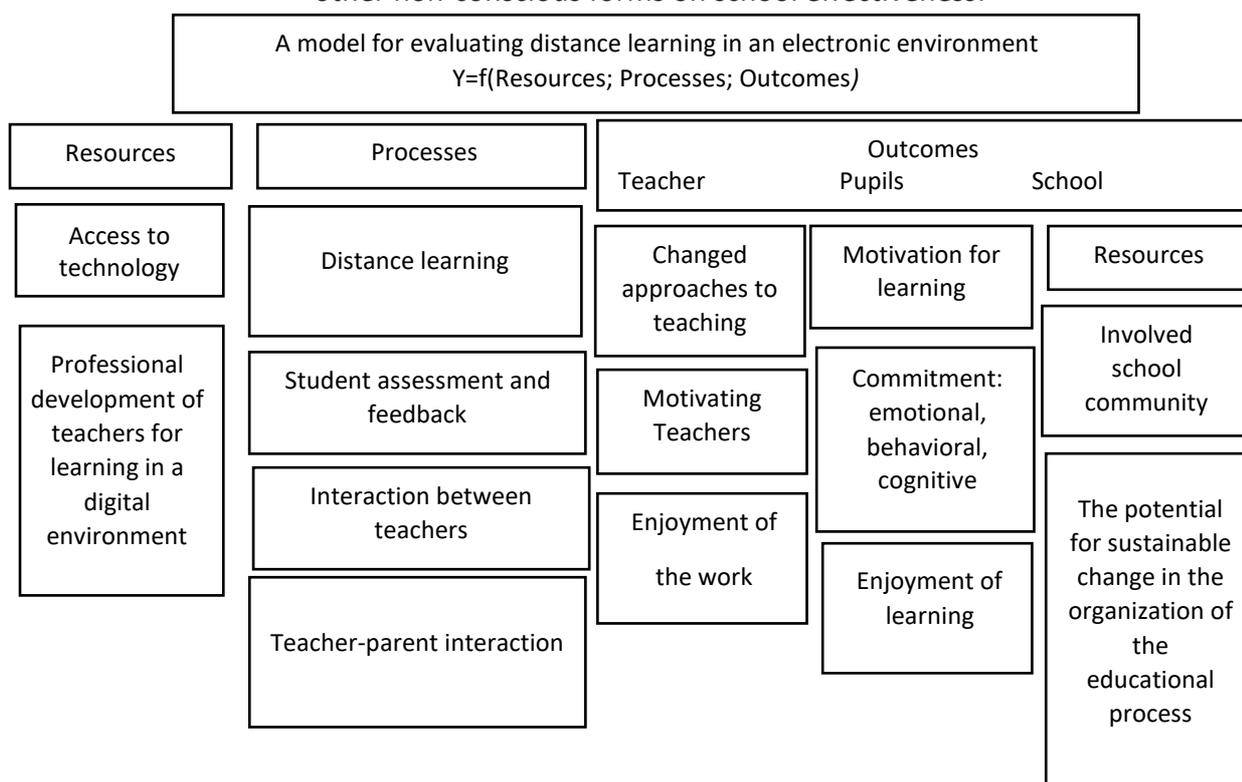
The study was based on a sample prepared from complete national school system data provided by the Education Information Center. The sample was prepared in a way that adequately reflected the structure of the school system in relation to the students in the target group. The data were collected in 2020.

Through the research, the main factors affecting learning effectiveness at the school, classroom, and individual level (students, teachers, and parents) were identified and analyzed. Created a logical evaluation framework model linking the resources of the educational distance process, the organization and the flow of learning and teaching processes, available systems to adapt and support learning and achievement for students, teachers, parents, and school (Deineka, 2020).

A logical model for evaluating the impact of distance learning (Figure 1) was developed by linking an educational effectiveness model (Creemers & Kyriakides, 2008) and an educational production function model (Hanushek, 1994). The educational effectiveness model explores the complex factors that influence educational achievement through its action at three levels - school, classroom, and individual.

The specific resource elements, processes, and outcomes of the three levels form the framework model for evaluating the impact of distance learning in an electronic environment, shown in Figure 1. Specific indicators and measurement scales have been developed to measure each of these elements (more information is provided in the next section).

Figure 1. A model for evaluating the impact of distance learning in an electronic environment or other non-conscious forms on school effectiveness.



The productive function of education links the available educational resources (educational system, schools, and families) with the achievement of optimal educational outcomes. In general, the resources include school funding and infrastructure, curricula and programs, educational technology, teacher characteristics (education, experience, professional development, competencies), and socio-demographic characteristics of the family (parents' educational level, income, number of family members). This allows us to establish changes in individual student outcomes (not necessarily academic) that can be attributed to various school- and family-related factors.

As a result of the in-depth literature review, the following key assumptions were taken into account in establishing the methodological framework for the study:

- 1) the quality of technologies used in distance learning in an electronic environment has a positive relationship with learning outcomes.
- 2) the way technology is used in the learning process affects learning outcomes.
- 3) teachers' attitudes toward technology used in distance learning affect learning outcomes.
- 4) teachers' motivation is related to the effectiveness of teaching and learning in distance learning in an electronic environment.
- 5) student interaction and motivation has a positive relationship with the effectiveness of distance learning in an electronic environment;
- 6) student participation promotes the use of learning time and learning opportunities, which are the main factors in the formation of an effective educational process.
- 7) learners' emotional, cognitive, and behavioral attachment contributes to knowledge acquisition and skill-building.
- 8) commitment and motivation to learn to affect both student achievement and content at school.

Conversely, disengagement and demotivation lead to an increased risk of learning loss and school dropout, which are the primary expected adverse effects of disengagement through the Covid-19 pandemic.

Scaling procedures were applied to measure the significance of the variables included in the current exposure assessment, characterized by high levels of abstraction and direct observation and immediate environment, resulting in the creation and validation of seven psychometric scales: (1) emotional attachment; (2) scales for behavioral; (3) scales for cognitive commitment; (4) scales for self-management in a learning context (as a proxy for student motivation); (5) scales for self-assessment of learning ability; (6) scales for learning and (7) scales for teacher self-assessment in using ICT in the educational process. The construction of each of these scales is based on the existing underlying scientific theory and adaptation to the Bulgarian context of similar validated rocks used in the world research practice.

The creation and adaptation of each of these scales went through the following 6 consecutive steps:

- 1) a review and description of the theoretical model on which the scale is based and the definition of the items to be measured;
- 2) a review of research supporting similar scales for measurement and the selection of reliable scales to use for assessment purposes;
- 3) theoretical identification of the combination of questions (i-topic) that are indicative of the latent variable on displacement that is measured from a particular cliff.
- 4) translation from English, adaptation, and compilation of the initial set of questions to measure the relevant theoretical variable (a specific type of interaction, self-regulation in the context of learning, self-assessment of learning abilities, structured learning, motivation) and selection of the format of responses;
- 5) inclusion of the given questions in questionnaires for students and teachers;

6) application of the procedure of analysis of internal consistency, reliability, and validation of scales based on the data of the whole sample after the survey;

7) optimization of scales and analysis of results.

Students answer questions with a 5-step rock on Lickert Frequency: 1 - never, 2 - rarely, 3 - sometimes, 4 - often, 5 - always. There are no questions asked on this scale. To identify extreme cases of disengagement where students (a) cannot reflect more accurately on and make informed judgments about their own experiences related to their cognitive interactions with learning, or (2) do not want to participate in evaluating the processes and learning strategies used, a modification to the methodology was undertaken, with a 0 –“I cannot judge” filter added to the classic 5-step frequency scale.

The theoretical justification for the use of such a filter in a particular case is related to the hypothesis that this option is mostly chosen by demotivated respondents, for whom the topic has no special meaning, is of no interest, or causes very little affective interaction. In addition, the fact that the option “I cannot judge” is often chosen by respondents who lack confidence in their own ability to formulate a reasoned opinion (subjective competence) or do not see any substantial benefit in formulating such an opinion is taken into account. Given that such associations demonstrate low motivation to formulate and share a meaningful opinion on the topic under study, and are therefore particularly relevant when measuring attitudes, the research methodology suggests that the “I cannot judge” filter has additional informative value for the level of cognitive interaction. However, the fact that only 0.5% of respondents (N=22 schoolchildren) did not commit to formulating a reasoned opinion on all of the questions included in the Cognitive Commitment scale and chose the “I cannot judge” option should be considered.

The result for ranking is the arithmetic mean of the responses with a maximum value of 5. In interpreting the results, it is assumed that the higher the slope value, the higher the level of students' cognitive engagement.

Results below 3 are considered low levels of cognitive engagement. To test the construct validity of the cognitive attachment whines, confirmatory factor analysis was conducted using the principal components method with a Varimax rotation with Kaiser's Ormalization. The Kaiser-Meyer-Olkin Measure of Sampling Adequacy shows much good sample adequacy KMO= 0.93. Bartlett's test for sphericity, $\chi^2=19487.86$; $p<.001$, shows that correlations between variables are large enough for principal component analysis. One factor was determined to include the 7 items (questions) considered, the total explained variance after rotation is 56.8%, and the actual value is -5.11. These results indicate that the cognitive interaction scale is constructively valid for the samples given.

Cronbach's coefficient of Alpha (α) was used to test the validity of the cognitive interaction scales by analyzing the responses to the 9 versions of the composed question given by the students (N= 4,437).

A value of $\alpha = 0.904$ indicates excellent internal consistency and reliability (Table 1). Pearson correlation coefficients, showing the relationship between the individual questions that form the cliff face, are in the range of 0.424-0.632.

Table 1. Scales for participation: reliability, average stability, standard deviation, and the number of elements.

Scale and elements	Cronbach's Alpha	Average cost	Standard deviation	Number of items
Scale for cognitive interaction	0.904	3.377	1.021	9
Behavioral Interaction Scale	0.845	3.621	0.854	7
Emotional Attachment Scale	0.880	3.441	0.931	7

This means that the interrelationships between the individual items range from moderate to high, with no one item being very similar to another, meaning that they are all different indicators for measuring the same latent variable (cognitive interaction).

The correlation of each option with the overall score (corrected question-total correlation) is greater than 0.6, which means that the appropriate option is a good component for measuring the scale - 2. Removing any of the included 9 questions that make up the cliff results in a decrease in its reliability (Cronbach's Alpha coefficient), showing that all options have a positive effect on the overall reliability of the cliff, and they are well constructed.

In addition, correlational analysis of the data showed that parents' overall satisfaction with distance learning was highly correlated with teachers' teaching effectiveness. Motivation to actively participate in the learning process, good organization of distance learning, individual counseling by teachers, and encouraging children to learn to have a strong correlation with parents' satisfaction with distance learning. Parents' overall satisfaction with distance learning correlates from weak to strong with synchronous instruction by teachers, coordination by the classroom teacher, additional support from parents, and frequency of feedback from teachers about children's progress (Levin, 2000).

There is a low inverse correlation between overall parent satisfaction and the need for additional consultation from teachers.

Overall parent satisfaction with the distance learning process increases as the need for additional parent-teacher consultation decreases. In all likelihood, parents expected teachers to be proactive about advising their children and their overall satisfaction with the distance learning process correlates with this activity.

According to parents, the correlation analysis showed moderate correlations between the approach to instruction and learning effectiveness. According to parents, the approach to learning improves according to how well teachers were able to engage students in the learning process, to organize instruction in an electronic environment so that it is clear, to counsel children individually when they find difficulties, and to encourage children to learn.

DISCUSSION

Khmliar et. al. (2020) found that the spatial regulation of personal behavior is significantly affected by such internal symbols as social prestige, introversion-extroversion, total volume. This proves that personal and non-personal messages influence the regulation of personal behavior. Personal messages are usually conveyed in intimate and private spaces. Non-personal messages are conveyed in all four.

Zou et. al. (2021) surveyed 2310 students with no English major and 149 English teachers from three types of twelve universities in Wuhan was conducted to assess their readiness for online English education during the COVID- 19 pandemic to find out the problems they faced and have implications for future online college education in English. Quantitative statistics collected using two readiness scales adapted from previous studies showed that both cohorts were slightly below readiness for an unexpected online college English education transition. Students had an overall readiness level of 3.68 out of 5 points, and teachers had an overall readiness level of 3.70. Individual differences were examined and reported. Analysis of the qualitative results summarized six categories of student problems: technical problems, problems related to the learning process, the learning environment, self-control, efficiency and effectiveness, and health problems. Although students reported the highest level of readiness for access to technology, they were more concerned about technical challenges during online learning. For teachers, among the three types of challenges, they were most frustrated by pedagogical ones, especially students' disengagement from the online classroom. The survey brought insights into the development of English education in online colleges.

Wang et al. (2021) in their study investigate how this learning situation (LB) and performance (SP) in higher education. The study is based on cooperative learning theory, sociocultural learning theory, and ML theory. This quantitative study used a convenience sampling method to collect data through structured questionnaires distributed to 396 college students with a mobile device. The results showed that ML was a significant and positive predictor of SP and LB (p. 674–678). Moreover, student LB partially mediated the relationship between ML and SP. The results suggest that students' academic performance can be improved by creating an ML environment that matches students' LB.

De (2022) in his study shows that the quarantine imposed by the Rwandan government to contain the spread of Covid-19 had a negative impact on public education because the country did not provide e-learning services to children during the quarantine. Looking at the above argument, it can be concluded that lack of ICT infrastructure, lack of investment, poverty, and inaccessibility of ICT tools, and lack of ICT skills (to create and use e-teaching and e-learning content) were the main reasons why the government could not provide e-services to students during the quarantine.

Sonnenschein et al. (2022) a study examined parents' views of distance learning students' COVID-19 crises Using a survey distributed via social media, we examined parents' views (N = 153) of PK-12 education for students receiving special education services during COVID-19. special education and related service hours were reduced during virtual learning, (2) parents reported that their children could not participate in virtual learning without significant adult support, (3) parents often could not help their children through other commitments, including work and childcare.

Rotar-Pavlic et al. (2022) reviewed the experiences of Slovenian DBE medical students during the COVID-19 pandemic, mainly revealing shortcomings in the computer literacy of teachers.

Added to this was the confusion created by the use of different tools, which required quick reactions and ingenuity of students and faculty in an online environment. The transition of Slovenian medical students to DBE during the COVID-19 pandemic marked the technical problems significantly. This was particularly evident in the lack of objective implementation of practical clinical training, most affected during the pandemic. Another important finding, which raises many questions that deserve further attention, is the impact of social isolation.

Zou et al. (2021) summarized six categories of problems faced by students, namely technical problems, problems related to the learning process, the learning environment, self-control, efficiency and effectiveness, and health problems. Although students reported the highest level of readiness for access to technology, they were most concerned about technical problems during online learning. As for teachers, among the three types of problems, they were most frustrated by pedagogical problems, especially student detachment in the online classroom. The survey provided insight into the development of online English learning in colleges.

Teachers and researchers alike noted the importance of using what we learned during the pandemic to view distance learning so that it can be maximized in the future (Mueller and Goldenberg, 2020b; Bojurt et al., 2020). In all likelihood, this will not be the last break-in education, and planning and preparation may provide better and fairer solutions the next time around.

Bojurt et al. (2020) point to the importance of collaboration with psychologists and social scientists and the development of distance education both online and offline, with an emphasis on equity so that the digital divide does not lead to a “survival of the fittest” scenario.

It is interesting to see how most language teachers have embraced online teaching, expanding their scope of teaching and developing new teaching skills that will be needed for their future practice. Meanwhile, we also heard about the recurring problems and difficulties reported by these aspiring online language teachers. Because most of them were forced to learn online without choice, previous experience, sufficient training, or deep understanding, their workload and anxiety increased (Taldong & Toquero, 2020).

This is not surprising given that less than half of all teachers felt well-prepared to teach online by the pandemic according to the OECD TALIS survey (OECD, 2019). One of the biggest sources of concern is that teachers do not know if their instruction is working in an online environment, or in other words, if they are successfully capturing students' attention during online lessons (Gao & Zhang, 2020; Stickler & Shi, 2014). All of the nonverbal cues that teachers used to rely on in face-to-face classes—such as eye contact, gestures, nods—have become unavailable or at least less reliable and timely; not to mention, many teachers have looked at students' black box video windows and asked themselves: “Am I talking into the void?”

The concept of shared attention has its origins in research on child speech development (Tomasello & Farrar, 1986), where episodes of shared attention are associated with increased child speech activity and then a large increase in vocabulary. Although we cannot directly transfer knowledge about children's learning processes to adult language learners, general attention is important for social learning (Creemers & Reezigt, 1996; Kim & Mundy, 2012). Methods for studying general attention in adults include eye-tracking (Caruana et al., 2018; Pfeiffer, et al., 2013).

Shi & Stickler (2021) in their study by incorporate two viewpoints into a single learning event: the teacher's viewpoint and his/her focus with the student in a single synchronous language textbook. In the experiment, two separate iTrackers were used simultaneously to record and reconcile data from both sides to validate the concept. Follow-up interviews with stimulated reflection took place in a parallel viewing format of the visualization, commenting on the stimulus, effectively creating small focus groups. This method allows the student and teacher to compare and contrast their experiences and to support each other in reasoning about the tutorials. The results show the dynamics of the teacher's and student's shared attention; witness, for example, how the students' attention moves around the teacher's instructions if the communication is successful and how the student tries to focus on the appropriate parts of the screen when instructions are lost due to technical or linguistic difficulties. This research also provides information on general attention, miscommunication, and incoherence during online synchronous lessons (Shi & Stickler, 2021).

There are many practical problems and obstacles in distance learning during a pandemic; as a result, the conditions do not match the situations in which distance learning typically occurs. Therefore, it is important to talk directly with teachers who have had experience with distance learning for their students during this pandemic and to glean from their ideas and reflections what worked well, what was not effective, and how this relates to best practice recommendations from existing research.

CONCLUSION

In developing the model, it is reported that in addition to accessibility and access to technology and educational resources, the key role in the effectiveness of distance learning is the motivation and competence of teachers, structured learning, implementation of adaptation and learning support systems, as well as the provision of feedback.

The role of self-study skills and time management on the part of students is also taken into account. Special attention is given to students' motivation to learn and commitment to learning and school. The role of parents and the interaction and cooperation between teachers and parents is considered. Each of the factors of educational effectiveness is measured by specific indicators. Specific psychometric scales were adapted and validated for context for the purposes of the study, with which results with a high degree of abstraction that cannot be monitored and measured directly (e.g., motivation and commitment) were measured.

All of the following findings have been made through the lens of the model created to assess the impact of distance learning in electronic environments or other non-conscious forms on educational effectiveness. They present a snapshot of the different indicators after distance learning

and reflect its impact. Keep in mind that essentially most of the factors considered affecting the effectiveness of the learning process in the physical classroom as well.

Thus, the study offers the possibility of a broader diagnosis of educational effectiveness in the educational system. This can facilitate data-driven decision-making to ensure adaptability and improve the effectiveness of the educational process to reduce disparities, ensure equal opportunities for quality education, ensure the sustainability of acquired knowledge and skills, and reduce the risk of dropping out of school in the face of the COVID-19 pandemic.

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REFERENCES

- UNESCO IITE. (2021, July 14). Updated Recommendations on schooling during COVID-19 Pandemic.
- Walsh, M. J., Groose, R. W., Obour, A. K., Claypool, D. A., Delaney, R. H., & Krall, J. M. (2013). Seed Persistence in Soil of Five Medic Cultivars in Southeastern Wyoming. *Crop Science*, 53(2), 674–678. <https://doi.org/10.2135/cropsci2012.06.0357>
- Cheung, A. (2021). Synchronous online teaching, a blessing or a curse? Insights from EFL primary students' interaction during online English lessons. *System*, 100, 102566. <https://doi.org/10.1016/j.system.2021.102566>
- Cheung, A. (2021 a). Synchronous online teaching, a blessing or a curse? Insights from EFL primary students' interaction during online English lessons. *System*, 100, 102566. <https://doi.org/10.1016/j.system.2021.102566>
- Chew, S. Y., & Ng, L. L. (2021). The influence of personality and language proficiency on ESL learners' word contributions in face-to-face and synchronous online forums. *Journal of Nusantara Studies*, 6(1), 199–221. <https://doi.org/10.24200/jonus.vol6iss1pp199-221>
- Deineka, L. P. (2020). Fundamentals of Psycholinguistics.
- Shmatkov D., Zagalaz-Sanchez M.L., and Cachon-Zagalaz J.(2021). Analysis of posters for public awareness through social media in Covid-19: The Ukrainian Network. *PSYCHOLINGUISTICS*, 30 (1), 249-273. <https://doi.org/10.31470/2309-1797-2021-30-1-249-273>
- APS COVID-19 Resource— Association for Psychological Science. American Psychological Society (2020).
- Hawryluck, L., Gold, W. L., Robinson, S., Pogorski, S., Galea, S., & Styra, R. (2004). SARS Control and Psychological Effects of Quarantine, Toronto, Canada. *Emerging Infectious Diseases*, 10(7), 1206–1212. <https://doi.org/10.3201/eid1007.030703>
- Horesh, D., & Brown, A. D. (2020). Traumatic stress in the age of COVID-19: A call to close critical gaps and adapt to new realities. *Psychological trauma : theory, research, practice and policy*, 12(4), 331–335. <https://doi.org/10.1037/tra0000592>
- WHO (2020). COVID-19 situation reports. Available at: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports>
- Maksymenko, S.D., ed. (2020). Psychological dimensions of personal interaction of subjects of educational space in the context of the humanistic paradigm: monograph; Academician NAPN Ukraine. Kyiv: Slovo Publishing House.
- Zasiekina, L. (2021). Online cognitive-behavioral therapy for students' emotional distress during the COVID-19 pandemic. *Psychological Prospects Journal*. <https://doi.org/10.29038/2227-1376-2021-38-49-62>

- Su, Y., Xue, J., Liu, X., Wu, P., Chen, J., Chen, C., Liu, T., Gong, W., & Zhu, T. (2020). Examining the impact of COVID-19 lockdown in Wuhan and Lombardy: A psycholinguistic analysis on Weibo and Twitter. *International Journal of Environmental Research and Public Health*, 17(12), 4552. <https://doi.org/10.3390/ijerph17124552>
- Davies, C., Hendry, A., Gibson, S. P., Gliga, T., McGillion, M., & Gonzalez-Gomez, N. (2021). Early childhood education and care (ECEC) during COVID -19 boosts growth in language and executive function. *Infant and Child Development*, 30(4). <https://doi.org/10.1002/icd.2241>
- Creemers, B. P. M., & Reezigt, G. J. (1996). School Level Conditions Affecting the Effectiveness of Instruction. *School Effectiveness and School Improvement*, 7(3), 197–228. <https://doi.org/10.1080/0924345960070301>
- Creemers, B. P. M., & Reezigt, G. J. (1997). School Effectiveness and School Improvement: Sustaining Links. *School Effectiveness and School Improvement*, 8(4), 396–429. <https://doi.org/10.1080/0924345970080402>
- Creemers, B., & Kyriakides, L. (2007). *The dynamics of educational effectiveness: A contribution to policy, practice and theory in contemporary schools*. Routledge.
- Creemers, B.P.M. & Kyriakides L. (2008). *The Dynamics of Educational Effectiveness: A contribution to policy, practice and theory in contemporary schools*. Routledge.
- Hanushek, E. & Woessmann, L. (2020). The economic impacts of learning losses. *OECD Education Working Papers*, OECD Publishing, Paris, 225. <https://doi.org/10.1787/21908d74-en>
- Levin, D. T. (2000). Race as a visual feature: Using visual search and perceptual discrimination tasks to understand face categories and the cross-race recognition deficit. *Journal of Experimental Psychology: General*, 129(4), 559–574. <https://doi.org/10.1037/0096-3445.129.4.559>
- Eccles, J. S., & Wigfield, A. (2002). Motivational Beliefs, Values, and Goals. *Annual Review of Psychology*, 53(1), 109–132. <https://doi.org/10.1146/annurev.psych.53.100901.135153>
- Powell, S. T., & Leary, H. (2021). Measuring learner–content interaction in digitally augmented learning experiences. *Distance Education*, 42(4), 520–546. <https://doi.org/10.1080/01587919.2021.1986369>
- Khmliar, O., Popovych, I., Hrys, A., Pavliuk, M., Zavatska, N., Lytvynenko, O., & Blynova, O. (2020). Spatial regulation of personal behavior under conditions of the accelerating covid-19 pandemic. *Revista Inclusiones*, 289-306.
- Zou, C., Li, P., & Jin, L. (2021). Online college English education in Wuhan against the COVID-19 pandemic: Student and teacher readiness, challenges and implications. *PLoS one*, 16(10), e0258137. <https://doi.org/10.1371/journal.pone.0258137>
- Wang, Z., Qadir, A., Asmat, A., Aslam Mian, M. S., & Luo, X. (2021). The advent of Coronavirus disease 2019 and the impact of mobile learning on student learning performance: The mediating role of student learning behavior. *Frontiers in Psychology*, 12, 796298. <https://doi.org/10.3389/fpsyg.2021.796298>
- De, U. (2022). Analysing the importance of e-government in times of disruption: The case of public education in Rwanda during Covid-19 lockdown. *Evaluation and Program Planning*, 102064, 102064. <https://doi.org/10.1016/j.evalprogplan.2022.102064>
- Sonnenschein, S., Stites, M. L., Grossman, J. A., & Galczyk, S. H. (2022). “This will likely affect his entire life”: Parents’ views of special education services during COVID-19. *International Journal of Educational Research*, 112(101941), 101941. <https://doi.org/10.1016/j.ijer.2022.101941>
- Müller, L. M., & Goldenberg, G. (2020 b). Education in times of crisis: Teachers’ views on distance learning and school reopening plans during COVID-19: Analysis of responses from an online survey and focus groups. *Chartered College of Teaching*.
- Bozkurt, A., Jung, I., Xiao, J., Vladimirsch, V., Schuwer, R., Egorov, G., ... & Paskevicius, M. (2020). A global outlook to the interruption of education due to COVID-19 pandemic: Navigating in a time of uncertainty and crisis. *Asian Journal of Distance Education*, 15(1), 1-126.
- Talidong, K. J. B., & Toquero, C. M. D. (2020). Philippine teachers’ practices to deal with anxiety amid COVID-19. *Journal of Loss & Trauma*, 25(6–7), 573–579. <https://doi.org/10.1080/15325024.2020.1759225>
- Talidong, K. J. B., & Toquero, C. M. D. (2020). Philippine teachers’ practices to deal with anxiety amid COVID-19. *Journal of Loss & Trauma*, 25(6–7), 573–579. <https://doi.org/10.1080/15325024.2020.1759225>
- OECD. (2019). *TALIS 2018 results: Teachers and School Leaders as lifelong learners (volume I)*. Paris: OECD Publishing. <https://doi.org/10.1787/1d0bc92a-en>

- Gao, L. X., & Zhang, L. J. (2020). Teacher Learning in Difficult Times: Examining Foreign Language Teachers' Cognitions About Online Teaching to Tide Over COVID-19. *Frontiers in Psychology*, 11. <https://doi.org/10.3389/fpsyg.2020.549653>
- Stickler, U., & Shi, L. (2014). Eye movements of online Chinese learners. *CALICO Journal*, 32(1), 52–81. <https://doi.org/10.1558/calico.v32i1.25964>
- Tomasello, M., & Farrar, M. J. (1986). Joint Attention and Early Language. *Child Development*, 57(6), 1454. <https://doi.org/10.2307/1130423>
- Tomasello, M., & Farrar, M. (1986). Joint attention and early language. *Child Development*, 57(6), 1454–1463. <https://doi.org/10.2307/1130423>
- Kim, K., & Mundy, P. (2012). Joint attention, social-cognition, and recognition memory in adults. *Frontiers in Human Neuroscience*, 6, 172. <https://doi.org/10.3389/fnhum.2012.00172>
- Caruana, F., Gerbella, M., Avanzini, P., Gozzo, F., Pelliccia, V., Mai, R., Abdollahi, R. O., Cardinale, F., Sartori, I., Lo Russo, G., & Rizzolatti, G. (2018). Motor and emotional behaviours elicited by electrical stimulation of the human cingulate cortex. *Brain*, 141(10), 3035–3051. <https://doi.org/10.1093/brain/awy219>
- Pfeiffer, U. J., Vogeley, K., & Schilbach, L. (2013). From gaze cueing to dual eye-tracking: Novel approaches to investigate the neural correlates of gaze in social interaction. *Neuroscience & Biobehavioral Reviews*, 37(10), 2516–2528. <https://doi.org/10.1016/j.neubiorev.2013.07.017>
- Shi, L., & Stickler, U. (2021). Eyetracking a meeting of minds: teachers' and students' joint attention during synchronous online language tutorials. *Journal of China Computer-Assisted Language Learning*, 1(1), 145–169. <https://doi.org/10.1515/jccall-2021-2006>
- Rotar-Pavlic, D., Erzar, A., Uštar, B., & Maksuti, A. (2022). Medical students' perception of distance-based education during the COVID-19 pandemic in Slovenia: A qualitative study. *International Journal of Educational Research Open*, 3(100135), 100135. <https://doi.org/10.1016/j.ijedro.2022.100135>
- Salcedo-Lagos, P., Morales-Candia, S., Fuentes-Riffo, K., Rivera-Robles, S., & Sanhueza-Campos, C. (2021). Teachers' perceptions analysis on students' emotions in virtual classes during COVID19 pandemic: A Lexical Availability approach. *Sustainability*, 13(11), 6413. <https://doi.org/10.3390/su13116413>

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