

Effectiveness of Teacher-Made Digital Speeches in Improving the Communication and Delivery Skills of the First Year College Students in Purposive Communication Course

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ABSTRACT

In today's classroom, technology is becoming a more prominent form of learning. With the ever-changing world of technology, teachers work hard to incorporate technology into their everyday instruction to connect student passion with learning. According to Harris (2016): Today's educators are under great pressure to provide 21st century students with a quality education based on 21st century standards. Those standards include providing students with the technological and informational skills needed to compete in an ever-changing, technology-driven world. In the present study, the researcher provided a teacher-made digital speeches to suit the 21st century learners improve their communication and delivery skills in purposive communication course because it was found out during the first twoweeks of the opening of classes that most of the first-year college students lack self-confidence and knowledge on the skills being developed in the previous grades. Employing the quasi-experimental research design through the pre-test and post-test using a researcher-made speeches and rubrics, it was revealed that there is a significant difference in the pretest and post-test performances of the first-year college students in purposive communication course before and after the utilization of teacher-made digital speeches in improving the communication and delivery skills. Thus, it was found out that the teacher-made digital speeches are effective instructional materials and learning resource in improving the communication and delivery skills of the first-year college students in purposive communication course. The content, piece, delivery of the speech and the technology used made the learning resource effective to use in the teaching-learning process.

Keywords — Effectiveness, Teacher-Made Digital Speeches, Communication, Delivery Skills, First Year College Students, Purposive Communication Course

I. INTRODUCTION

One of the values to be developed in teaching oral communication is self-confidence and self-esteem. For students to be successful in the classroom, confidence is critical especially if the student is not exposed to people. High self-esteem helps students build relationships, bounce back from mistakes, and actively engage in learning. But sadly, it is easy for the students to get discouraged.





Using technology has a profound impact on education and is seen to be of great help in boosting the confidence of the students. From online classes to using apps for homework, students today increasingly rely on technology to help them learn.

Fortunately, there are plenty of ways to use technology to build confidence and keep them interested in learning. Academic self-esteem refers to a students' confidence in their abilities. A student with high self-confidence views themselves positively, trusts that they are competent, and expects and feels worthy of respect from their peers.

Self-confidence for students is critically important for learning. Confidence and self-esteem enable students to embrace their full potential and explore new subjects and hobbies without worrying about how others perceive them. This can also be hugely beneficial in social situations and building relationships, giving students the freedom to be their genuine selves in front of their peers without fear of judgement.

High self-esteem can also boost motivation. Students who are confident in their capabilities tend to believe that their goals and aspirations are within reach, which encourages them to put in the effort needed to achieve their ambitions. It's also believed that student confidence can enable students to handle setbacks better. Students who believe in their abilities are more likely to bounce back from mistakes to try again.

On the other hand, lack of confidence can lead to feelings of self-doubt and make students reluctant to engage in learning or take the risks needed to tackle new academic challenges. In the face of such challenges, students with low self-esteem may disengage or stop trying altogether. In addition to the impact of a lack of confidence on learning outcomes, there is also a worrying association between low self-esteem and anxiety, depression, and risk-taking behaviors.

As educators, a high level of engagement should be a priority. The more students are engaged, the more they learn, and the more they achieve. It also makes it significantly easier to maintain energy throughout the day. That is why teachers nowadays must be technologically advanced to create and formulate digitally engage learning materials and activities for today's students grew up in the digital age.

Educators should be taking advantage of technology, rather than viewing it as a distraction, to increase student engagement. To make sure that students are getting the most out of every lesson, the content should be presented in a way that the work has a clear meaning and immediate value to the students. Technology in the classroom allows students to gain a deeper understanding of topics that interest them, collaborate with each other, and direct their learning.

Thus, it is in this premise that the researcher decided to conduct this study to evaluate the effectiveness of teacher-made digital speeches in improving the communication and delivery skills of the first-year college students in Purposive Communication Course of which during this stage they are aloft of mingling with their classmates and schoolmates. A proposed improvement plan was formulated based on the findings of the study. Additionally, it is in this premise that the researcher who is currently the School Principal and subject teacher in the above mentioned local, would like to delve worthy research undertaking that will benefit herself, the school she is currently teaching and that of her Graduate Program she is enrolled at.

This study evaluates the effectiveness of teacher-made digital speeches in improving the communication and delivery skills of first year college students in Purposive Communication Course in Sto. Niño College of Ormoc, District 10, Ormoc City Division during the School Year 2022-2023. The findings of the study were the basis for the proposed improvement plan.

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Specifically, this study sought to answer the following questions:

- 1. What is the pre-test performance of the first-year college students in communication and delivery skills before the utilization of teacher-made digital speeches in teaching Purposive Communication Course?
- 2. What is the post-test performance of the first-year college students in communication and delivery skills after the utilization of teacher-made digital speeches in teaching Purposive Communication Course?
- 3. Is there a significant difference in the pre-test and post-test performances of the first-year college students in communication and delivery skills before and after the utilization of teacher-made digital speeches in teaching Purposive Communication Course?
- 4. What improvement plan can be proposed based on the findings of this study?

II. METHODOLOGY

Design. This study employed the quasi-experimental research design utilizing the pre-test and post-test to evaluate the effectiveness of teacher-made digital speeches in improving the communication and delivery skills of first year college students in Purposive Communication Course for School Year 2022-2023. Sto. Niño College of Ormoc, District 10, Ormoc City Division is the main locale of the study. The 45 first-year college students who are currently enrolled in Purposive Communication Course in the said locale are the main respondents of the study. A researcher-made speech with rubrics is the instrument used in the study. This will be delivered by the first-year college students before and after the utilization of teacher-made digital speeches as intervention materials to improve the communication and delivery skills of the students. Moreover, the researcher crafted the teacher-made digital speeches using any app available. This digital speech is a video on how to deliver the speech with sample passages for students to practice and this guides them on how communication and delivery skills are attained. A rubric to measure the performance of the students focusing on the way the students communicate and deliver the speech is given more points. The researcher also utilized audio-video materials in the delivery of speeches to be heard and viewed by the students. These materials can be accessed using online and offline channels. The activities undertaken during the four-week intervention were listed in the crafted course syllabus for the course. These materials were submitted to the Department Head for validation and quality assurance. Matrix of activities was crafted to track the activities provided by the researcher in the duration of data gathering procedure and for monitoring purposes by the thesis adviser and School Director. This research focused on evaluating the effectiveness of teacher-made digital speeches in improving the communication and delivery skills of first year college students in Purposive Communication Course through the pre-test and post-test and its significant difference. A Proposed Improvement Plan based on the findings of the study is the output.

Sampling. The respondents of this study were the forty-five (45) First-Year College students enrolled in Purposive Communication Course. These students were provided with intervention programs crafted by the researcher. Hence, face-to-face classes has already been implemented during the data gathering process, the research instruments were administered face-to-face with consent from the parents and Local IATF and strictly following the prescribed Health Protocol during the limited face-to-face classes.

Research Procedure. The researcher prepared the research design and tools utilized in the study. Approval and recommendation from the Panel of Examiner of the Graduate Studies was sought. A letter request to conduct this study was forwarded to the Office of the Schools Division Superintendent. Upon approval, permission from the District Supervisor and School Head was secured before the actual gathering of data. Orientation of the participants and administration of the pre-test was done face-to-face after the approval of the permit from the parents of the respondents. The tools used in the study were teacher-made digital speeches, audio-video speeches, rubrics, practical test, and matrix of activities. These tools underwent a series of validation by the Language Department Head and School Director before it was given to the students. After the approval of the tools, these were pre-tested to other sections and conducted to the





respondents. In the conduct of the pre-test, the researcher requested the Language Department Head and School Director as judges and at the same time raters. After accomplishing the pre-test, intervention was given within four weeks. The implementation of the approved and checked research tools and instruments was done in the duration of the data gathering process. After the four-week intervention, the post-test was administered. Results of the tests were collected. Data were tallied and submitted for statistical treatment. Analysis and Interpretation of Data. Making of Proposed Improvement Plan followed.

Ethical Issues. The researcher properly secured the permission to conduct the study from the authorities through written communication. In the formulation of the intervention materials that was used in the study, the use of offensive, discriminatory or other unacceptable language was avoided. The respondents' names and other personal data were not included in this study to protect their privacy. Participation of the respondents was also voluntary. Orientation was conducted for the respondents with their parents. In the orientation, issues and concerns were addressed and consent to be included in the study were signed. The researcher-maintained objectivity in analyzing and discussing the results. All authors whose works were mentioned in this study were properly quoted and were acknowledged in the reference.

Treatment of Data. The Simple Percentage was employed to evaluate the pre-test and post-test performances in communication and delivery skills of the First-Year college students before and after the utilization of teacher-made digital speeches in teaching Purposive Communication Course. **t-Test of Mean Difference** was used to determine the significant difference in the pre-test and post-test performances of the first-year college students.

III. RESULTS AND DISCUSSION

TABLE 1

PRE-TEST PERFORMANCE OF THE FIRST YEAR COLLEGE

Score Range	Description	PRETEST		
		Frequency	%	
17-20	Excellent	0	0	
13-16	Very Good	5	11	
9-12	Good	28	62	
5-8	Fair	12	27	
0-4	Poor	0	0	
Total		45	100	
Weighted Mean		9.22	Good	

Table 1 presents the pre-test performance in communication and delivery skills of the first-year college students before the utilization of teacher-made digital speeches in teaching Purposive Communication Course. It was revealed on the table that among the 45 first-year college students there 5 or 11% got a score of 13-16 which is interpreted as very good. Moreover, it was also revealed that there are 28 first-year college students or 62% got a score of 9-12 which is interpreted as good. Further, it was revealed on the table that there are 12 first-year college students or 27% got a score of 5-8 which is interpreted as fair. Finally, the table shows that the pre-test performance of the first-year college students in communication and delivery skills before the utilization of teacher-made digital speeches has a weighted mean of 9.22 which is interpreted as good. This means that these students need intervention activities which uses technology like the



teacher-made digital speeches. This implies that teachers must provide intervention activities which will boost interest and confidence in the delivery of speeches. Teachers are an important part of the integration of education and technology concepts (Arslan & Şendurur, 2017; Inan & Lowther, 2010; İşman, 2015; Soydan, 2018). Therefore, teachers should have sufficient knowledge of educational technology, especially regarding digital learning material preparation. Thus, it will be easier to create a constructivist teaching environment (Takıcak, 2016). In addition, teachers should lead students in accessing digital learning materials (Çakır & Oktay, 2013). In the teaching process, teacher-student communication is generally maintained through teaching materials. At this point, the importance of digital learning materials is an undeniable fact (Soydan, 2018).

TABLE 2
POST-TEST PERFORMANCE OF THE FIRST YEAR COLLEGE

Score Range	Description	POST-TEST		
Score Kange	Description	Frequency	%	
17-20	Excellent	16	36	
13-16	Very Good	19	42	
9-12	Good	9	20	
5-8	Fair	1	2	
0-4	Poor	0	0	
Total		45	100	
Weighted Mean		15.56	Very Good	

Table 2 presents the post-test performance of the first-year college students after the utilization of teacher-made digital speeches in teaching and learning Purposive Communication Course. It was revealed on the table that among the 45 first-year college students, 16 or 36% got a score of 17-20 which is interpreted as excellent. Moreover, there are 19 first-year college students who got a score of 13-16 which is interpreted as very good. Further, there are also 9 first year college students or 20% got a score of 9-12 which is interpreted as good. Additionally, one first-year college student got a score of 5-8 which is interpreted as fair. Finally, the table also revealed that the post-test performance of the first-year college students after the utilization of teacher-made digital speeches has a weighted mean of 15.56 which is interpreted as very good. This means that after the utilization of teacher-made digital speeches, performance of the students increased. This implies that the teacher-made digital speeches is an effective instructional materials in improving the performance of the students in communication and delivery skills. Teachers are an important part of the integration of education and technology concepts (Arslan & Şendurur, 2017; Inan & Lowther, 2010; İşman, 2015; Soydan, 2018). Therefore, teachers should have sufficient knowledge of educational technology, especially regarding digital learning material preparation. Thus, it will be easier to create a constructivist teaching environment (Takıcak, 2016). In addition, teachers should lead students in accessing digital learning materials (Çakır & Oktay, 2013). In the teaching process, teacher-student communication is generally maintained through teaching materials. At this point, the importance of digital learning materials is an undeniable fact (Soydan, 2018).



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TABLE 3

TEST OF DIFFERENCE BETWEEN THE SCORES IN THE PRE-TEST AND POST-TEST PERFORMANCE OF THE FIRST YEAR COLLEGE

Aspects	Test Scores		Computed T	Critical T	Decision	Interpretation
Grade 6 Pupils	Pre Post	9.22 15.56	2.871	0.734	Reject H _o	Significant

Table 3 presents the test of difference between the scores in the pre-test and post-test performance of the first-year college students before and after the utilization of teacher-made digital speeches. It was revealed on the table that the computed value or t of 2.871 is greater than the critical value of t of 0.734, so null hypothesis is rejected. This means that there is significant difference in the pre-test and post-test performances of the first-year college students before and after the utilization of teacher-made digital speeches. The mean of the pre-test performance of 9.22 has increased to 15.56 in the post-test after the utilization of the teacher-made digital speeches. This implies that the teacher-made digital speeches provided to the first-year college students have helped improve their performance. Technology has helped student willingness and engagement and allows for the enhancements of learning. According to Fisher, et al. (2014), "The need for construction and engagement means that the best types of learning will be those that involve choices that the student can make, and learning where there are meaningful contexts where the student is engaged". But is this enough to outweigh some of the negatives? In a study conducted by Sülzenbrück, et al. (2011) that examined the effect computer use has on motor skills, they discovered that using modern technology could effect changes in basic psychomotor and cognitive skills. This includes using tools such as computers, electronic organizers, navigation systems, etc. This can cause concerns about student growth in the classroom. Digital instructional materials have the potential for increased individual interactivity (Choppin & Borys, 2017). Also, digital instructional materials contain a broader array of adaptivity and personalization features, and they have more potential to be accessible to students with disabilities (Choppin & Borys, 2017). Finally, digital instructional materials have a greater occurrence of built-in assessment programs (Choppin & Borys, 2017).

IV. CONCLUSION

The study revealed that there is a significant difference in the pre-test and post-test performances of the first-year college students in purposive communication course before and after the utilization of teacher-made digital speeches in improving the communication and delivery skills. Thus, it was found out that the teacher-made digital speeches are effective instructional materials and learning resource in improving the communication and delivery skills of the first-year college students in purposive communication course. The content, piece, delivery of the speech and the technology used made the learning resource effective to use in the teaching-learning process.

V. RECOMMENDATIONS

1. The proposed improvement plan formulated should be utilized by the teachers to further test whether the intervention is effective to improve the performance in communication and delivery skills in Purposive Communication Course.

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- 2. Teachers should produce teacher-made digital speeches to address the needs of the students for the improvement of their communication and delivery skills.
- 3. Teachers should implement technology enhancement activities to the students to improve their performance.
- 4. Teachers should provide alternative learning support materials to help them understand the concept correctly and be able to apply the knowledge gained.
- 5. Teachers must attend training or LAC sessions on the production and crafting of digital learning resource materials for the improvement of communication and delivery skills.
- 6. Teachers must attend training on teaching strategies and methods in teaching Purposive Communication Course.
- 7. School Heads should allocate the budget for the procurement of IT equipment to be used in the formulation of digital learning activities and resources.
- 8. School Heads should spearhead in the crafting of training design and LAC plan for trainings and LAC sessions for the improvement of teaching-learning process of teachers most especially in the improvement of digital learning resource materials to be used during classes.
- 9. School Heads should provide technical assistance to teachers in terms of teaching communication and delivery skills.
- 10. School heads should monitor the conduct of classes and provide technical assistance for the improvement of its implementation.
- 11. School Heads should regularly monitor the teaching-learning process of teachers.
- 12. School Heads should maximize the time in providing appropriate technical assistance based on the needs of the teachers in teaching Purposive Communication Course.
- 13. School Heads should submit the crafted digital learning resource materials for remedial instructions for quality assurance.
- 14. School Heads should encourage and provide technical assistance for the crafting of innovations and research based on the intervention provided to improve the performance of the pupils; and
- 15. Future researchers should replicate this study to include different locales and include different variables aside from the mentioned in this study.

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REFERENCES

- [1] Akçay, H., Tüysüz, C., Feyzioğlu, B., & Oğuz, B. (2008). Effect of computer aided and computer assisted chemistry instruction on students' attitudes and success. Mersin University Journal of the Faculty of Education, 4(2), 169-181. Retrieved from https://dergipark.org.tr/tr/pub/mersinefd/issue/17385/181690
- [2] S. O. Bada and S. Olusegun, "Constructivism learning theory: A paradigm for teaching and learning," Journal of Research & Method in Education, vol. 5, no. 6, pp. 66-70, 2015
- [3] Baki, A., Aydın Yalçınkaya, H., Özpınar, İ., & Çalık Uzun, S. (2009). Comparing views of primary school mathematics teachers and prospective mathematics teachers about instructional technologies. Turkish Journal of Computer and Mathematics Education, 1(1), 65-83. Retrieved from https://dergipark.org.tr/en/pub/turkbilmat/issue/21560/231419
- [4] J. Broadbent and W. L. Poon, "Self-regulated learning strategies & academic achievement in online higher education learning environments: A systematic review," The Internet and Higher Education, vol. 27, pp. 1-13, 2015 Çakır, R., & Oktay, S. (2013). Teachers' use of technology as becoming information society. The Journal of The [5] **Industrial** Education Faculty 35-54. Arts of Gazi University, 30, Retrieved from https://dergipark.org.tr/tr/pub/esef/issue/28790/308083
- [6] Choppin, J., & Borys, Z. (2017). Trends in the design, development, and use of digital curriculum materials. ZDM, 49(5), 663–674
- [7] Crouse, T., Rice, M., & Mellard, D. (2018). Learning to serve students with disabilities online: Teachers' perspectives. Journal of Online Learning Research, 4(2), 123–145. https://www.learntechlib.org/primary/p/184933/





- [8] Demirel, Ö., & Yağcı, E. (2017). Eğitim, öğretim teknolojisi ve iletişim[Education, instructional technology and communication]. In Demirel, Ö. & Altun, E. (Eds.). Öğretim teknolojileri ve materyal tasarımı[Instructional technologies and material design] (9th edition) (pp. 2-26). Ankara: PegemA Yayıncılık.
- [9] Demirel, Ö. (2011). Öğretim ilke ve yöntemleri: Öğretme sanatı[Teaching principles and methods: The art of teaching] (17th edition). Ankara: PegemA Yayıncılık.
- [10] Digital Content Goes to School. (2016). The 2019 Digital Content Report. ACSD. Retrieved from http://www.ascd.org/professionaldevelopment/white-papers-library/overdrive-ascd-download.asp
- [11] Digital Learning Collaborative (2019). Snapshot 2019: A review of K-12 online, blended, and digital learning. Retrieved from www. evergreenedgroup.com/keeping-pace-reports
- [12] T. M. Duffy and D. H. Jonassen, Constructivism and the Technology of Instruction: A Conversation, Routledge, 2013.
- [13] Fisher, A., Exley, K., & Ciobanu, D. (2014). Using technology to support learning and teaching. London: Routledge, Taylor & Francis Group.
- [14] Gallagher, C. M. (2020). Yet another (Mis)representation of disability: A critical content analysis of blindness/vision impairment in young adult literature. University of North Carolina. https://doi.org/10.17615/09yj-qm58
- [15] Greer, D., Rice, M., & Deshler, D. (2014). Applying principles of text complexity to online learning environments. Perspectives on Language and Literacy, 40(1), 9–14.
- [16] Harris, C. J. (2016) The effective integration of technology into schools' curriculum. Distance Learning, (2), 27.
- [17] Heafner, T. (2004). Using technology to motivate students to learn social studies. Contemporary Issue in Technology and Teacher Education, 4(1), 42-53. Retrieved from https://www.learntechlib.org/primary/p/21905/
- [18] Inan, F. A., & Lowther, D. L. (2010). Laptops in the K-12 classrooms: Exploring factors impacting instructional use. Computers & Education, 55(3), 937-944. https://doi.org/10.1016/j.compedu.2010.04.004
- [19] İşman, A. (2015). Öğretim teknolojileri ve materyal geliştirme[Instructional technologies and material development] (5th edition). Ankara: PegemA Yayıncılık.
- [20] Kalolo, J. F. (2019). Digital revolution and its impact on education systems in developing countries. Education and Information Technologies, 24(1), 345–358
- [21] Karamustafaoğlu, O. (2012). How computer-assisted teaching in physics can enhance student learning. Educational Research and Reviews, 7(13), 297-308. https://doi.org/10.5897/ERR11.272
- [22] Koehler, M.J., & Mishra, P. (2005). What happens when teachers design educational technology? The development of technological pedagogical content knowledge. Journal of Educational Computing Research, 32(2),131-152. https://doi.org/10.2190/0EW7-01WB-BKHL-QDYV



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- [23] Kolburan Geçer, A. (2010). Experience of technical teacher candidates towards teaching technologies and material development course. Van Yuzuncu Yil University Journal of Education, 7(2), 1-25. Retrieved from https://dergipark.org.tr/en/pub/yyuefd/issue/ 13710/165987
- [24] Koşar, E., & Çiğdem, H. (2003). Eğitim ortamı tasarımı, araç-gereç ve materyal özellikleri. Öğretim teknolojileri ve materyal geliştirme[Educational environment design, equipment and material properties. Instructional technologies and material development]. Ankara:PegemA Yayıncılık.
- [25] Kundu, A. & Rice, M. (2019). Indian educators' perceptions of their preparation and resources to support inclusion in secondary schools. British Journal of Special Education, 46(4), 398–422. https://doi.org/10.1111/1467-8578.12282 [26] Kundu, A., Bej, T., & Rice, M. (2021). Time to engage: Implementing math and literacy blended learning routines in an Indian elementary classroom. Education and Information Technologies, 26, 1201–1220. https://link.springer.com/article/10.1007%2Fs10 639-020-10306-0
- [27] Lloyd, M. (2013). Something's coming, something good: Identifying TPACK competence in pre-service teachers' analyses of learning objects. Australian Educational Computing, 28(1). Retrieved from https://journal.acce.edu.au/index.php/AEC/ article/view/12
- [28] MoNE, (2018). Matematik dersi öğretim programı. (İlkokul ve Ortaokul 3,4,5,6,7 ve 8. Sınıflar) [Mathematics lesson curriculum. (Primary and Secondary School 3,4,5,6,7 and 8th Grades)]Retrieved from http://mufredat.meb.gov.tr/Dosyalar/ 201813017165445-MATEMAT%C4%B0K%20%C3%96%C4%9ERET%C4%B0M %20PROGRAMI%202018v.pdf
- [29] Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. Teachers College Record, 108(6), 1017-1054. Retrieved from https://www.learntechlib.org/p/99246/
- [30] L. Nelson, C. J. Cushion, P. Potrac, and R. Groom, "Carl rogers, learning and educational practice: Critical considerations and applications in sports coaching," Sport, Education and Society, vol. 19, no. 5, pp. 513-531, 2014.
 [31] Ornstein, A. C., & Lasley, T. J. (2000). Strategies for effective teaching (3rd ed.). Boston, USA: McGraw Hill Higher Education.
- [32] Özkurt, M.F. (2017). The relation between the class teachers senses of self efficacy with teaching technologies and talents of materiel designing [Unpublished master's thesis]. Necmettin Erbakan University.
- [33] Phillips, M. (2013). Investigating in-service teachers' workplace TPACK development. Australian Educational Computing, 28(2). Retrieved from https://journal.acce.edu.au/index.php/AEC/article/view/23
- [34] Rice, M. (2018). Supporting literacy with accessibility: Virtual school course designers' accessibility planning for students with disabilities. Online Learning, 22(4), 161–179. https://eric.ed.gov/?id= EJ1202365
- [35] Şahin, T. Y., & Yıldırım, S. (2001). Öğretim teknolojileri ve materyal geliştirme [Instructional technologies and material development]. Ankara: Anı Yayıncılık.
- [36] Selwyn, N. (2007). Curriculum online? Exploring the political and commercial construction of the UK digital learning marketplace. British Journal of Sociology of Education, 28(2), 223–240.



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- [37] Sipahioğlu, S. (2019). Investigation of primary science teachers' attitudes toward use of technology in education according to various variables [Unpublished master's thesis]. Atatürk University, Erzurum.
- [38] Somyürek, S. (2014). Gaining the attention of generation z in learning process: augmented reality. Educational Technology Theory and Practice, 4(1), 63-80. https://doi.org/10.17943/etku.88319
- [39] Soydan, C. (2018). Investigation of digital learning material development processes of field teachers in guidance of information technologies teacher [Unpublished master's thesis]. Ondokuz Mayis University, Graduate School of Educational Sciences.
- [40] Stevenson, M., Bower, M., Falloon, G., Forbes, A., & Hatzigianni, M. (2019). By design: Professional learning ecologies to develop primary school teachers' makerspaces pedagogical capabilities. British Journal of Educational Technology, 50(3), 1260- 1274. https://doi.org/10.1111/bjet.12743
- [41] Sulzenbruck, S., Hegele, M., Rinkenauer, G., Heuer, H. (2011). The death of handwriting: secondary effects of frequent computer use on basic motor skills. Journal of Motor Behavior, 43(3), 247-251. doi:10.1080/00222895.2011.571727.
- [42] Takıcak, M. (2016). Salih zeki's view to philosophy of mathematics: nâmütenâhî. Dört Öge, (9), 191-200. Retrieved from https://dergipark.org.tr/tr/pub/dortoge/issue/ 40210/478779
- [43] Tezci, E., & Perkmen, S. (2013). Oluşturmacı perspektiften teknolojinin öğrenme-öğretme sürecine entegrasyonu[Integration of technology into the learning-teaching process from a constructivist perspective].In K. Çağıltay, & Y. Göktaş (Eds.). Öğretim teknolojilerinin temelleri: Teoriler, araştırmalar, eğilimler [Instructional technology foundations: Theories, research, trends](pp. 185-211). Ankara: PegemA Yayıncılık.
- [44] Turel, Y. K., & Sanal, S. O. (2018). The effects of an ARCS based e-book on student's achievement, motivation and anxiety. Computers & Education, 127, 130-140. https://doi.org/10.1016/j.compedu.2018.08.006
- [45] Uyangör, S.M., & Ece, D.K. (2010). The attitudes of the prospective pathematics teachers towards instructional technologies and material development course. TOJET: The Turkish Online Journal of Educational Technology, 9(1), 213-220. Retrieved from https://eric.ed.gov/?id=EJ875784