Google Cards as a Tool to Improve Writing Skills among EFL Young Children with Learning Disabilities

DR. Ahmed Mohamed Gadelmawla[*].

Assistant professor- Department of Special Education- College of Education- Jouf University.KSA

DR. Aya Mohamed Gadelmawla[†]

English teacher, Gamal Abdel Nasser Primary School, Cairo, Egypt.

ABSTRACT

Google Cards (GC) are the cards that appeared in the results of Google search engine that contain an image with text, or shapes with text to provide educational rules or information, the current research aimed to introduce a program based on GC and problem-based learning (PBL) to improve writing s among EFL young children with learning disabilities. After the literature review of PBL and writing, a list of writing skills was prepared, as a guide for the proposed program. The results indicated the program sessions should be in 8 basic elements for each session: Title, objectives, teaching aids, Warm-up, procedures of learning writing skills using GC and PBL, directions to improve the learning of EFL young children with learning disabilities, evaluation, homework. The results were discussed in detail, and recommendations were provided.

[*] Corresponding author:Email: amgelmawla@ju.edu.sa

[†]   aya.mohamed.gad@gmail.com

بطاقات جوجل كأداة لتحسين مهارات الكتابة لدى الطلاب ذوي صعوبات التعلم الذين يدرسون اللغة الإنجليزية كلغة أجنبية

يُقصد ببطاقات جوجل تلك البطاقات التي تظهر في نتائج البحث على محرك جوجل، وتحتوي على صورة مع نص مكتوب، أو شكل مع نص مكتوب؛ بهدف تقديم قواعد ومعلومات تربوية، ويهدف البحث الحالي إلى تقديم برنامج قائم على استخدام بطاقات جوجل والتعلم القائم على المشكلة لتحسين مهارات الكتابة لدى الأطفال الصغار ذوي صعوبات التعلم الذين يتعلمون اللغة الإنجليزية كلغة أجنبية، وفي سبيل تحقيق ذلك، تم عمل قائمة بمهارات الكتابة الملائمة لغرض البحث، وكدليل لجلسات البرنامج المقترح. ومن أبرز نتائج البحث تقديم رؤية نظرية للبرنامج الذي يمكن استخدامه لتحقيق هدف البحث، وتضمنت تلك الرؤية بيان ثمانية عناصر رئيسة هي عناوين الجلسات المعبرة عن محتوى كل جلسة، وأهداف الجلسات، والوسائل التعليمية المساعدة التي يمكن استخدامها، والتهيئة، وإجراءات تعلم مهارات الكتابة المستهدفة، وكيفية استخدام بطاقات جوجل والتعلم القائم على المشكلة ضمن تلك الإجراءات لتحسين مهارات الكتابة المستهدفة، وإجراءات التقويم، والواجبات المنزلية، واختتم البحث بمناقشة النتائج، وتقديم مجموعة من التوصيات ذات العلاقة.

تربية خاصة، بطاقات جوجل، التعلم القائم على المشكلة، التعلم الإلكتروني، الكتابة.

Introduction:

Writing is a very important process for students in all learning stages (Özdemir & Aydin, 2020), learning writing involves the whole child and the writing practice that he is part of (Colliander, 2018). Writing also is used to measure children' achievement and understanding of content material as well as to promote the learning of it (Graham & Hall, 2016). The students at all levels try to have competency in English language components/skills in general and

particularly in writing abilities/skills; being more important as used for assessment of their academic achievements (Dastgeer & Afzal, 2015).

Previous studies have demonstrated a relationship between successful reading progress and letter-naming fluency, and the correlation between letter-naming and letter-writing fluency. Understanding of significant features of letters has received less interest as a part of handwriting skills development, but it is theorized to also play a vital role in letter-writing fluency skills (Reutzel, Mohr, & Jones, 2017).

Reutzel, Mohr & Jones, 2017 sought to delineate potential components of letter-writing fluency using four related skills with kindergarten students, finds confirm the correlation between letter-writing fluency and letter-naming and point to that identification and treatment of critical letter features associated with letter-writing fluency.

Context of the Problem:

Learning disabilities are lifelong difficulties that affect all parts of a student's life (Gonen & Grinberg, 2016). Berninger, & Amtmann, (2003) review 12 years of studies on the prevention of writing and spelling problems. The results indicated that early intervention trays aimed at teaching spelling or handwriting to at-risk individuals reduce the percent of children who need to rely on a program based on computer technology to avoid low-level writing processes. They find that transcription abilities differentiate between poor and good readers. For children with dyslexia or specific writing difficulties without motor problems, the results indicated that orthographic coding is directly related to handwriting.

Fenwick, et al., (2016) examined the characters of written expression as a common writing disability type. Findings had relevance for differential diagnosis of written expression subtypes, discriminating written expression specific learning disability subtypes from low written expression achievement, and improving differentiated evidence-based intervention and instruction for children with written expression specific learning disability.

Learning disabilities are often divided into two main types, the developmental (non- academic) learning disabilities and the academic learning disabilities (Zu'bi, 2017; Sowerbutts, & Finer, 2019). Writing disabilities appear as a common type of academic learning disabilities.

The problem:

The problem of this study can be identified in the weakness of writing abilities in primary grades, especially English Foreign Language (EFL) learners with writing disabilities, this requires appropriate strategies and suitable approaches to help them, So, the present study aims to use problem- based learning approach to improve writing abilities for students with writing disabilities, through a training program depending on Google Cards, that cards, and its identify, advantages, types, uses, and its role in helping students with learning disabilities will be introduced in the current research.

Treatments for EFL young children with writing disabilities

Learning to write and read efficiently is one of the greatest importance for elementary school students. Though, writing is often difficult for beginning writers (Camacho, & Alves, 2017), there is numerous educational intervention to improve the writing skills of children in primary school.

Birketveit & Rimmereide, (2017) examined effects of general reading of dependable illustrated books/picture books had on the students' writing abilities in 11-year-olds EFL classroom. Limpo & Alves, (2017) investigated the mediating effect of pauses and bursts on the relation between text quality or writing fluency and transcription abilities.

Can we use Problem-based learning to develop some writing skills?

Problem based learning (PBL) is a known method of introduce courses and constructing using problem as the stimulus and extremely focus for learners activity (Boud & Feletti, 2013). We could adopt PBL for reinforce teaching-learning environment at our schools by preparing the teachers and students with writing disabilities for PBL implementation (Dastgeer, & Afzal, 2015).

Rationale for selecting PBL

Problem-based learning is an educational approach (or strategy) that has a probable to prompt children with writing disabilities to build up and improve flexible understanding and life-long learning abilities (Sanga, 2018).

Figure (1):

Benefits of PBL

https://pbs.twimg.com/media/DancJqyVwAA6mB-.jpg
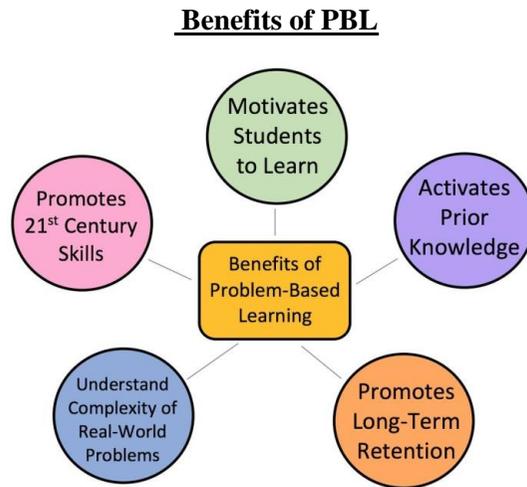
Figure (1): Some Benefits of PBL

Generally, several areas have benefited from problem based learning in teaching and learning. In the field of instructional technology, there have been numerous attempts to link problem-based learning with instructional technology tools (e.g. Martin, 2018); in medical specialties education, several studies have emerged (e.g. Wosinski, et al., 2018; Singh, Kundur & Nguy, 2018; Lexén, Hultqvist, & Amnér, 2018); in business education (e.g. Velliaris & Pierce, 2018); in the field of instructional engineering, many studies (e.g. Salamah, Towhidnejad & Hilburn, 2018; Vigano, et al., 2018) have also been interested in problem based learning.

Problem-based learning may be very benefit for children with writing disabilities if the teachers could apply it in their classroom teachings, and the curriculum developers could include it at different levels particularly in teachers' training programs (Dastgeer, & Afzal, 2015).

Philosophy& Characteristics of Problem-Based Learning:

In problem-based learning, the main importance is on helping children to engage in more tasks to increase their current knowledge, skills, and competencies through "learn by doing" educational approaches and methods in which the children and students solve a lot of actual problems (Sanga, 2018). Children with learning disabilities may need more time and effort to learn problem-based learning steps, Rosinski & Peeples (2012) find that the type of writing procedures can lead students to improve symbolic subjectivities, also, problem-based learning procedures were very useful for students and teacher to develop students writing skills.

PBL is a good methodology to break the vicious cycle of the general principles about teaching and to experiment with educational innovation in order to engage the students in their own learning process (Cabodevilla-Artieda, Torres & Muniesa, 2016). The educational leaders could adopt PBL for enhancing teaching-learning environment at their institutions by facilitating the teachers and students with writing disabilities for PBL implementation (Dastgeer, & Afzal, 2015).

Writing as a process:

In the present study, writing as a process refers to using a basic process (e.g. prewriting, editing& publishing) to improve our writing.

Google Cards:

Google Cards (GC) are the cards that appeared in the results of Google search engine that contain an image and text, or shapes and text to illustrate educational rules or information.

Why do we need Google cards?

Why does a teacher or parents have to browse thousands of pictures when looking for aids to teach a lesson or an educational skill to their children? This is what happens when choosing the image search section on the Google search engine, what if a special sector is designated on the Google search engine for educational images? So that only the pictures that are related to education appear and not the personal pictures or the inappropriate images to display in the educational field, what if a new search sector was added called "Google Cards" and its results are limited to displaying pictures, shapes, concept maps and educational worksheets or that can be used in teaching a specific thing?

Thus, this will save time, effort, and cost for teachers and parents, especially in light of the growing need for distance education and e-learning, which requires educational service providers to make the best use of their time. Google can make a great benefit for users through this allocation, as previously allocated to "Google Scholar" for scientific research, it is possible to allocate "Google Cards" or "Google Educational Cards" for everything related to teaching and educational pictures, such as pictures explain concepts, worksheets, and other similar images.

Figure2: Google Cards- punctuation- (officestationery.com)

Google Cards Benefits:

These cards represent good hints to help students complete educational tasks in light of the required rules, in an attractive way. Google Cards also help the learner to develop his self-learning skills and support active learning.

Google Cards features:

Among the most important features of Google Cards:

− Summarize the information in a way that can be easily perceived.

− Easy to remember.

− Ease of finding.

- Variety of shapes.

- Confirmation of the same information in several forms/ pictures.

- Increased focus on required information, by increasing attention to it.

- Ease of printing.

- Ability to keep hard copies.

- You can design activities to search for Google Cards, within the activities of self-learning.

- These cards promote active learning.

- These cards promote student-centered learning.

- It can be used in evaluating learners' performance by the teacher, and most importantly, in self-evaluation; where the learner compares his writing with the contents of the Google Cards

Types of Google Cards:

- Common cards (Alphabet cards- numbers cards (0-10) … etc).

- Uncommon cards (capitalization cards- punctuation cards- … etc).

- Google Cards can be divided into other types, in terms of color and shape.

Applied significance of the research:

  - **For EFL instructors:** The research can help in signifying the importance of writing skills targeted in the research in EFL learning and teaching, especially, for children with learning disabilities. Instructors can use Google Cards and PBL to achieve better outcomes for children with learning disabilities.

- **For EFL researchers:** The study provides EFL researchers with a theoretical foundation and new vision about combing Google Cards and PBL, on which they can build for their further programs and studies.

Conclusion:

Google Cards (GC) can be a good tool in helping students focus on specific educational rules, and adherence to those rules during writing tasks, using these cards frequently, may help children with learning disabilities (LD) to improve their writing skills, because of the role of these cards in focusing their attention, increasing their awareness, and helping them remember information, within problem-based learning procedures, where the student accesses the information himself and applies it himself with teacher supervision, which supports his self-learning.

Method:

The literature of PBL, Google Cards, and writing skills were reviewed (2012- 2021) in Eric, Proquest, and EBSCO databases, then a list of writing skills was prepared, as a guide for the proposed program. Then an extensive search has been carried out regarding Google Cards; It included thousands of images that appeared as search results, and features of Google's educational cards were determined. A definition of it was formulated, most of its benefits were enumerated, and the advantages of its use were explained, whether with students with learning disabilities or in education in general. The program aimed to clarify how to benefit from Google Cards, and the program sessions were prepared in a simple way; To illustrate the ways to benefit from Google Cards in developing writing skills for students with learning disabilities.

Research Questions:

1. What are the overall objectives of this program?

2. What is the content of the program?

3. What is the list of sessions?

4. What are the procedures of using Google cards with PBL in each session in the program?

5. What is the content of full sessions?

6. What is the way to assess the learners" progress throughout the program?

Results:

The research results will be presented by answering the research questions, as follows:

1- The answer to the first question: What are the overall objectives of this program?

By the end of this program, the children will expected to:

– Use a basic process to improve writing.

– Use Google Cards to acquire a new knowledge about writing.

– Use some procedures of PBL to improve writing.

– Write word numbers from (1-10) using left to right directionality.

– Use left to right directionality in five sentences.

– Identify writing as a process correctly.

− Write five words: prewriting, drafting, revising, editing & publishing.

− Identify prewriting.

− Use prewriting to write one paragraph.

− Identify drafting.

− Use drafting to write one paragraph.

− Identify revising.

− Use revising to write one paragraph.

− Identify editing.

− Use editing to write one paragraph.

− Identify publishing.

− Use publishing to write one paragraph.

− Identify target tasks in writing.

− Use these tasks to write one paragraph.

2- The answer to the second question: What is the Content of the program?

The EFL young children will be given several sessions in order to improve their writing. It will consist of 8 sessions. The first session will be an opening and orientation session, the teacher will try to introduce the outline of the program to children this session, by the end of the session, the EFL young children will be supposed to have an overall idea about the program, they will see samples of Google Cards. Concerning the other sessions, different activities will be introduced to help EFL young children with writing disabilities to learn using GC

and any writing activities help them improve their writing skills within the limits of problem-based learning procedure; they will be allowed to choose between many activities; to encourage self-learning processes. The children's interests and needs must be considered while choosing the activities (look at full sessions).

Problem-based learning and Google Cards are the main tools that are used to achieve the target of the program and to facilitate the teacher's mission in creating an active learning environment. It is helpful as it will enable EFL learners with learning disabilities to play a big role in active learning. They will listen, search, know what is Google Cards, use Google Cards, reflect and discuss. They will engage in collaborative writing activities. They will be divided into several groups to finish certain tasks. They will cooperate to achieve the same goal in each session.

3- The answer to the third question: What is the list of sessions?

Program sessions should be arranged and sequenced from easy to difficult, as It has been agreed upon by several studies (e.g. del Olmo-Muñoz, et al., 2020; Mak-Hau, 2021; Shute, et al., 2021), so, the program sessions were organized in the current research as follows:

- Session 1: Using left to right directionality
- Session 2: My writing
- Session 3: My prewriting
- Session 4: My drafting
- Session 5: My revising
- Session 6: My editing
- Session 7: My publishing
- Session 8: Revision

We can repeat any session, any number of times (if needed).

4- The answer to the fourth question: What are the procedures of using Google cards with PBL in each session in the program?

Although, Google cards can be used alone in teaching some skills, and problem-based learning can also be used without Google cards, the current program's procedures aimed to combine the use of Google Cards with problem-based learning procedures, there are many studies have succeeded in employing problem-based learning in teaching a variety of skills (e.g. Chis, et al., 2018; Lexén, Hultqvist, & Amnér, 2018; Chen, et al., 2021), While the procedures that the current research has found to help teachers use both Google cards and problem-based learning to improve writing skills in children with learning disabilities can be listed as follows:

To improve writing skills using Google cards with PBL in each session, you should determine:

Table (1)

The procedures of using Google cards with PBL in each session in the program, and examples for each procedure

The procedures	Examples
The number and topic of the session	Session 1: Using left to right directionality.
Determine the Performance indicators	– Write word numbers from (1-10) using left to right directionality. – Use left to right directionality in five sentences. – Identify target tasks in writing. – Use these tasks to write one paragraph.
Determine the Learning Aids	Rules cards- Word number cards (0- 10)- Alphabet-sound cards (any google cards you need to achieve session goals).
Warm-up for first session	– Tell children that they will benefit from this program. – Tell children that they will see activities they will like. – Ask children to count the desks in the class.
Warm-up for other sessions	– Greet children and say, "Hello". – Remind children and say "What about the homework of the last session?" – Remind children that they will benefit from this program.

The procedures	Examples
	− Remind children that they will see activities they will like. − Remind children that we can use punctuation and capitalization to develop our writing.
Presentation	− Ask each child about his homework. − Give each child feedback for his performance: Reinforcement for true answers or correction for wrong answers. − Give reinforcement for each right answer. − Identify writing as a process. − Repeat as often as needed, then, monitor the children's understanding. − Show Google Cards again. − Ask children to write the 5 words about writing as a process in a paper individually. − Elicit that they can look at Google Cards. − Elicit that they can look at Alphabet-sound cards. − Arrange children into groups based on their total number. − Ask children to write (publishing) in a paper individually. − Make sure every child understands the important details. − Evaluate the first child, using the Google Cards. − Invite children to evaluate each other's using the Google Cards. − Make sure that they knew the rules and applied them, especially, that related to Identifying writing as a process correctly and Writing five words: prewriting, drafting, revising, editing & publishing.

Evaluation	Show the figure: Activity sheet 1: Look and describe, what do writers write?
	Answers:
	  - Poetry
	  - Reports
	  - Novels
	  - Emails
	  - Short stories
	During the evaluation, the teacher must focus on using a target writing skill.

Homework	Ask children to rewrite the sentences at home: We can improve our writing skills by using the instructions on Google Cards. what do writers write? Poetry- Reports- Novels- Emails- Short stories. Alert children to focus on: Writing a simple description of "what do writers write?" using activity sheet 1. Ask them to search Google for how to write a paragraphed? and tell them you will ask them about it in the next session.

5- The answer to the sixth question: What is the content of full sessions?

The answer to the sixth question includes presenting the program sessions with their full procedure. See Appendex (A).

6- The answer to the sixth question: What is the way to assess the learners" progress throughout the program?

The teacher will use a rubric to assess the learners" progress throughout the program. The rubric consisted of five writing elements: 1-prewriting, 2-drafting, 3-revising, 4-editing, 5-publishing.

To assess the learners' progress, the teacher will need to design a pre/posttest on writing skills. The children will answer the pre-test on the first session and the post-test on the last session. The teacher, then, will compare the results of the pretest and the post-writing test to measure the children's progress throughout the program.

Discussion:

As known, children with learning disabilities have different neuropsychological processing deficits that may disrupt academic achievement in writing, spelling (Fenwick, et al., 2016). So, considering the characteristics of children with learning disabilities it is necessary to prepare a suitable program for them. The researchers preferred to work on some handwriting skills at the beginning of the sessions; because the EFL young children will benefit from it in the other parts of the program.

The researchers thought the most important steps in helping EFL young children to be active learners and achieve the goals of the program:

− Telling children that they will benefit from this program at the beginning of each session, so, that will create their conviction that the program is useful to them, and they have to receive it with interest.

− Asking children a warm-up question, is also useful to attract their attention at the beginning of each session, just before the start of tasks.

− Telling children -at the beginning of each session- that they will work in activities they are like, arouse their motivation.

− Giving reinforcement for each right answer, even a simple answer, keep children engaged.

− Introducing details at the activity beginning is useful to attract and improve their attention.

− Directing children that they can look at rules cards, that is will be extracted from the basic ideas that appear in Google Cards, to know the targeted writing skills rules by themselves keep their active learning.
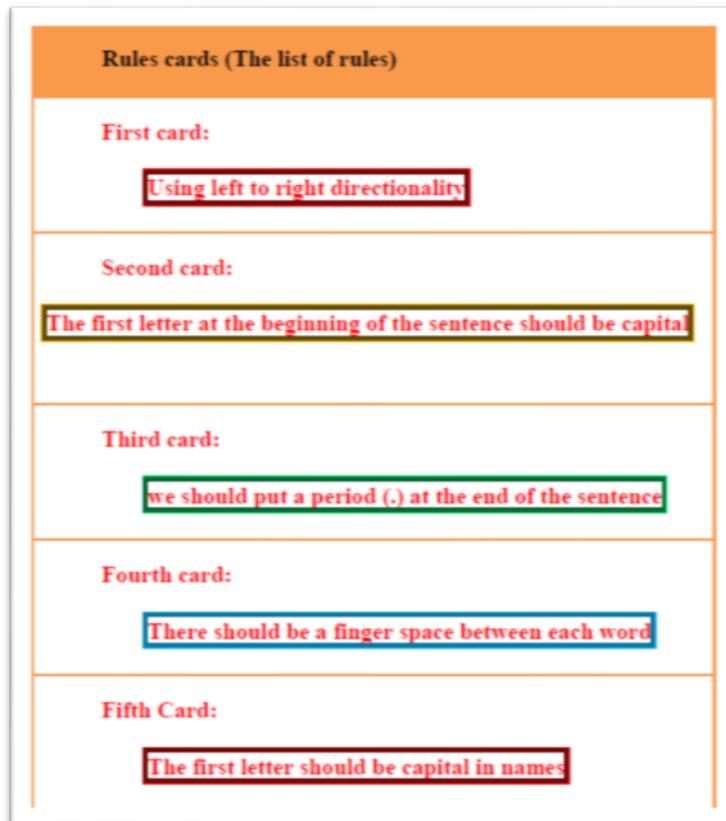
Figure3: Rules cards (prepared by the researchers)

− Arrange children into groups is also helpful.

− Asking children to write the word/sentence in a paper individually, then evaluating the first student, using the rules cards, then inviting children to evaluate each other's using the rules cards, it is an effective method to enhance active learning.

− You have to make sure that they knew the rules and applied them.

− Showing how to use resources: Common Google Cards (Alphabet-sound cards- Word number cards (0-10) ….. etc) or uncommon Google Cards (capitalization cards- punctuation cards- … etc) to aid in writing activities.
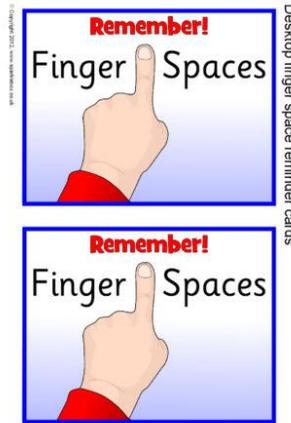
Figure4: Google Cards (Remember- Finger Spaces)
(https://www.sparklebox.co.uk/wp-content/uploads/2-8079.jpg)

− Giving related homework at the end of each session is an effective tool to help children to remember and review the targeted tasks.

− Alerting children to focus on targeted writing skill, in the all session procedures, evaluating and homework.

− Reminding children at the beginning of sessions: Saying "What about the homework of the last session?"

− Giving each student suitable feedback for his performance: Reinforcement-feedback for true answers or correction for wrong answers.

All these procedures will help EFL young children to develop a big number of writing skills, in addition, the arranging of sessions from easy skills to difficult skills is very important to achieve the objectives of the program. Also, rebating the same procedures in each session will make a framework among children; that will help them to believe the importance of acquiescing experiences by themselves.

These findings are in agreement with the findings of educational works of literature that investigated some impacts of Problem-based Learning on learning such as Chis, et al., 2018; Lexén, Hultqvist, & Amnér, 2018; Chen, et al., 2021, but the researchers don't find any studies that have used Google Cards as it used in the current research.

Recommendations

The researchers recommend:

− More opportunities to practice writing skills should be provided to EFL young children in the primary stage.
− EFL young children should be encouraged to practice more PBL activities .
− Teachers should pay much attention to writing skills as an integral language component that children themselves seek to develop.
− Teachers should pay much attention to Google search results and educational Google Cards as a useful tool to good learning.

Suggestions for Further Research

Researchers may consider the following suggestions:

− Exploring the effect of utilizing Google Cards and PBL on diverse learning outcomes.
− Choosing different children from different educational levels and applying the same current study on them.
− Developing the children writing skills using different activities.

References

Berninger, V., & Amtmann, D. (2003). Preventing written expression disabilities through early and continuing assessment and intervention for handwriting and/or spelling problems: *Research into practice. In H. Swanson, K. Harris, & S. Graham (Eds.), Handbook of learning disabilities*(p. 345– 363). New York: Guilford-Press.

Birketveit, A., & Rimmereide, H. E. (2017). Using authentic picture books and illustrated books to improve L2 writing among 11-year-olds. *The Language Learning Journal*, 45(1), 100- 116. doi.org/10.1080/09571736.2013.833280

Boud, D., & Feletti, G. (2013). Changing problem-based learning. In *The challenge of problem-based learning* (p. 9- 22). Routledge. doi.org/10.4324/9781315042039

Camacho, A., & Alves, A. (2017). Fostering parental involvement in writing: development and testing of the program Cultivating Writing. *Reading and Writing*, 3o(2), 253- 277. doi.org/10.1007/s11145-016-9672-6

Chen, C., Hung, H., & Yeh, H. (2021). Virtual reality in problem-based learning contexts: Effects on the problem-solving performance, vocabulary acquisition and motivation of English language learners. *Journal of Computer Assisted Learning*. doi.org/10.1111/jcal.12528

Chis, A., Moldovan, A., Murphy, L., Pathak, P., & Muntean, C. (2018). Investigating flipped classroom and problem based learning in a Programming Module for Computing Conversion course. *Journal of Educational Technology & Society*, 21(4), 232- 247. search.proquest.com/docview/2147868967?accountid=34495

Colliander, H. (2018). The experienced newcomer-The (trans) forming of professional teacher identity in a new landscape of practices. *Teaching and Teacher Education*, 69, 168- 176. doi.org/10.1016/j.tate.2017.10.012

del Olmo-Muñoz, J., Cózar-Gutiérrez, R., & González-Calero, A. (2020). Computational thinking through unplugged activities in early years of Primary Education. *Computers & Education, 150, 103832*. doi.org/10.1016/j.compedu.2020.103832

Fenwick, M., Kubas, H., Witzke, J., Fitzer, K., Miller, D., Maricle, D., Harrison, G., Macoun, S., & Hale, J. (2016). Neuro-psychological profiles of written expression learning disabilities determined by concordance discordance model criteria. *Applied Neuropsychology: Child*, 5(2), 83- 96. doi.org/10.1080/21622965.2014.993396

Gonen, A.; Grinberg, K. (2016). Academic Students' Attitudes toward Students with Learning Disabilities. *Journal of Education and Training Studies*, 4(9), 240- 246. doi.org/10.11114/jets.v4i9.1709

Graham, S., & Hall, T. (2016). Writing and Writing Difficulties from Primary Grades to College: Introduction to the Special Issue. *Learning Disability Quarterly*, 39(1), 3- 4. doi.org/10.1177/0731948715592154

Lexén, A., Hultqvist, J., & Amnér, G. (2018). Occupational therapy student experiences of a university mental health course based on an integrated application of problem-based and team based learning. *Scandinavian Journal of Occupational Therapy*, 25(1), 70- 77. doi.org/10.1080/11038128.2017.1367416

Limpo, T., & Alves, A. (2017). Written Language Bursts Mediate the Relationship Between Transcription Skills and Writing Performance. *Written Communication*, 34(3), 3o6 -332. doi.org/10.1177/0741088317714234

Martin, J. (2018). Digital Internships: Enriching Teaching and Learning with Primary Resources. *Best Practices in Teaching Digital Literacies*, 109- 121. doi.org/10.1108/S2048-045820180000009008

Mak-Hau, V., Hill, B., Kirszenblat, D., Moran, B., Nguyen, V., & Novak, A. (2021). A simultaneous sequencing and allocation problem for military pilot training: Integer programming approaches. *Computers & Industrial Engineering, 154, 107161*. doi.org/10.1016/j.cie.2021.107161

Özdemir, E., & Aydin, S. (2020). Blogging Effect on English as a Foreign Language Writing Motivation: Blogging and Writing Motivation. In *Language Learning and Literacy: Breakthroughs in Research and Practice* (p. 248- 268). IGI-Global. doi.org/10.4018/978-1-5225-9618-9. ch013

Rosinski, P., & Peeples, T. (2012). Forging Rhetorical Subjects: Problem Based Learning in the Writing Classroom. *Composition Studies*, 40(2), 9-32.

Salamah, S., Towhidnejad, M., & Hilburn, T. (2018). Digital Home: A Case-Study-Approach to Teaching Software Engineering Concepts. In *Computer Systems and Software Engineering* (p. 1284- 1299). IGI-Global. doi.org/10.4018/978-1-4666-5800-4. ch017

Sanga, A., Ndyetabula, W., Komba, C., & Mafu, S. (2018). Informatics Education Enhanced by Problem-Based Learning Model via E-Learning: Experience From BSU Project at SUA. In *Handbook of Research on Program Development and Assessment Methodologies in K-20 Education* (pp. 393-417). IGI Global. doi.org/10.4018/978-1-5225-3132-6. ch019

Shute, V., Rahimi, S., Smith, G., Ke, F., Almond, R., Dai, C., Kuba, R., Liu, Z., Yang, S., & Sun, C. (2021). Maximizing learning without sacrificing the fun: Stealth assessment, adaptively and learning supports in educational games. *Journal of Computer Assisted Learning*, 37(1), 127-141. doi.org/10.1111/jcal.12473

Singh, I., Kundur, A., & Nguy, M. (2018). Use of Technology in Problem Based Learning in Health Science. In *Encyclopedia of Information Science and Technology*, 4th (p. 5853- 5862). IGI-Global. doi.org/10.4018/978-1-5225-2255-3. ch509

Sowerbutts, A., & Finer, A. (2019). DLD and Me: Supporting Children and Young People with Developmental Language Disorder. *Routledge.* doi.org/10.4324/9780429319457

Velliaris, M., & Pierce, M. (2018). A Living 'C-C-C' case Study: A Business-Focused-Action-Learning-Project. In *Business Education and Ethics:*

Concepts, Methodologies, Tools, and Applications (p. 241- 258). IGI-Global. doi.org/10.4018/978-1-5225-3153-1. ch012

Vigano, R., Sacchelli, C., Duque, J., Lascano, S., & Ivashyn, U. (2018). Study on Interest and Perception of Value in Multinational Collaborative Design Projects Among Engineering Students. *Engineering Education for a Smart Society*, 16. doi.org/10.1007/978-3-319-60937-9

Wosinski, J., Belcher, A., Dürrenberger, Y., Allin, A., Stormacq, C., & Gerson, L. (2018). Facilitating problem based learning among undergraduate nursing students: A qualitative systematic review. *Nurse Education Today*, 60, 67- 74. doi.org/10.1016/j.nedt.2017.08.015

Zu'bi, N. (2017). Developmental and Academic Learning Differences for Preschool Children in North Jeddah, Saudi Arabia. *Journal of Educational and Psychological Sciences: National Center for Research in Gaza*, 5, 165-182. doi.org/10.26389/AJSRP.N010417