
GAMIFICATION AS AN INSTRUCTIONAL STRATEGY: A CONCEPTUAL OVERVIEW AND IMPLICATIONS FOR EFL TEACHING

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Abstract

This study presents a systematic literature review that investigates the research literature of gamification whether support or contradict the claims of effectiveness gamification as instructional strategy in EFL classroom and its implications on English as a Foreign Language teaching. The writers used a systematic literature review (SLR) in this study to find, assess, and combine studies regarding gamification in English as a Foreign Language (EFL) teaching. There are fifteen articles collected by the writers regarding gamification issues across the world. The results of the review reveal that seven studies from the researchers support that gamification positively influences motivation, emotions, and engagement levels in EFL learning and reduces anxiety. While there are eight studies that contradict the gamification that this issue doesn't consistently improve the language performance or proficiency without pedagogical alignment. This gamification presents valuable teaching implications for EFL learning but gamification should support communicative and task-based learning, avoid over-reliance on badges, points, leaderboards, focus on meaningful interaction and feedback, use gamification to reduce anxiety, especially in speaking tasks, the training is necessary for teachers in instructional design, not just technology.

Keywords: *Gamification, Instructional Strategy, Implications*

Introduction

Gamification is becoming a more essential teaching method in educational learning, especially in technology-driven and student-focused learning strategies. It is commonly understood as the integration of game-like features into settings that are not games, with the goal of boosting students' engagement, motivation, and also commitment (Deterding et al., 2011). In the language education field, gamification has gotten notable study interest because

it may help figure out persistent issues like student anxiety, less of engagement, and insufficient challenges for meaningful language practice (Reinhardt & Sykes, 2014).

In the field where English is taught as a foreign language (EFL), these issues can become more difficult because of short teaching time, focus on exams, and students' anxiety about making mistakes in language use. Therefore, the gamification as a teaching method is looked at closely by the researchers and educators to create more engaging, interactive, and motivating learning experiences (Zainuddin et al., 2020). Study findings typically highlight that when elements like badges, leaderboards, points, and stories are added to EFL teaching, students have better perceptions and higher involvement (Buckley & Doyle, 2016).

However, the rapidly growing body of literature, study findings are sometimes fragmented and contradictory. While students' engagement and motivation outcomes are frequently reported as positive, evidence regarding improvements in measurable language proficiency such as communicative competence, grammar accuracy, vocabulary acquisition remains inconsistent (Hanus & Fox, 2015). In addition, short-term interventions and rely heavily on self-reported data are adopted from many studies and limit the generalizability and explanatory power of the study findings.

Another limitation of gamification study in EFL lies in the theoretical grounding. Although studies often reference motivational frameworks such as Flow Theory (Mirvis & Csikszentmihalyi, 1991) and Self-Determination Theory (Ryan & Deci, 2000), regarding with how gamification supports language learning processes, these theories are rarely integrated into a coherent conceptual explanation. Sociocultural perspectives are also underexplored despite the collaborative nature of many gamified activities which emphasize interaction and mediation in language development, (De Costa, 2007).

Based on these gaps, a systematic synthesis of existing study is necessary to clarify what is currently known about gamification in EFL teaching, support and contradict claims the effectiveness of gamification in EFL classroom and identify the implications of gamification as an instructional strategy for EFL teaching. Therefore, this study conducts a systematic literature review (SLR) addressing the following study questions. Based on the study gap as illustrated before, the study gaps can be filled by answering the study questions. The study questions of this article are as follow:

1. How do existing empirical evidence support or contradict claims about gamification's effectiveness in EFL classrooms?
2. What implications do gamification as an instructional strategy hold for EFL teaching?

Research Methodology

The writers employed a systematic literature review (SLR) approach in this study to search for, assess, and combine studies related to gamification in English as a Foreign Language (EFL) teaching. The review was adhered to establish protocols, guarantee transparency, thoroughness, and the ability to replicate. The systematic review guidelines by (Kitchenham, 2007), and updated by (Snyder, 2019) are followed by the writers. The systematic literature review process is reproducible, clear, and thorough, to ensure the all-relevant literature is included. Three steps in this process such as planning, conducting, and reporting. It was outlined by (Tranfield et al., 2003). In the planning phase, the writer created the questions for research and criteria for inclusion based on the gaps in existing studies. A thorough search for peer-reviewed journal articles and conference papers involved in the conducting phase using academic databases and tools for managing references. Search terms included different forms of “gamification,” “instructional strategy,” and “EFL teaching.” The final reporting phase entailed collecting and analysing the results. There are fifteen articles collected by the writers regarding gamification issues across the world.

The conditions of the studies will be accepted if they met the following conditions such as centered on gamification within foreign language learning settings or EFL, conducted peer review, and presented empirical results. If they lacked clarity in methodology or did not directly pertain to language learning, the studies were dismissed. The writer chose the studies through examination by doing thematic synthesis. This method allowed for the discovery of common themes connected to empirical studies that support or contradict claims in EFL classrooms and the implications of the gamification for EFL teaching. In this part, the results of the systematic literature review are shown, arranged specifically according to the study questions that direct this study.

Results and Discussion

Results

In this part, the results of the systematic literature review are shown, arranged specifically according to the study questions from this study. The findings and implications will be illustrated in the table claim that the studies support or contradict the effectiveness of gamification in EFL teaching.

Table 1. Support or contradiction about the effectiveness of gamification in EFL teaching

Researchers	Title of the study	Findings	Implication	Support	Contradiction
(Domínguez et al., 2013)	Gamifying learning experiences: Practical implications and outcomes	Gamification significantly enhanced student motivation, involvement, and task completion.	Gamified tasks encourage sustained engagement and autonomous learning.	✓	
(Su & Cheng, 2015)	A mobile gamification learning system for improving learning motivation and achievements	Gamification significantly increased vocabulary learning and learners' enthusiasm.	Gamified mobile platforms are effective for vocabulary retention in EFL.	✓	
(Hung, 2018)	Gamifying the flipped classroom	Gamification improved engagement and collaborative learning.	Gamification complements communicative and task-based instruction.	✓	
(Poondej & Lerdpornkulrat, 2019)	Gamification in EFL classrooms	Gamification enhances motivation and grammar performance.	Grammar practice gives some benefits from game-based repetition.	✓	
(Zainuddin et al., 2020)	The impact of gamification on learning and instruction	Gamification enhances engagement and learner satisfaction.	Gamification is effective in a blended and online EFL environment.	✓	
(Peterson, 2016)	The use of MMORPGs in CALL.	Increased interaction and pragmatic performance.	Gamified virtual environments support communicative performance.	✓	
(Dehghanzadeh et al., 2021)	Using gamification to support EFL learning.	Gamification positively affects motivation and engagement.	Gamification supports learner-centered EFL teaching.	✓	

(Hanus & Fox, 2015)	Assessing the effects of gamification	Motivation decreased over time; no significant learning exposures	Lack of designing gamification can harm motivation.		✓
(Mekler et al., 2017)	Effects of individual gamification elements	No significant impact on proficiency.	Extrinsic rewards are insufficient.		✓
(Buckley & Doyle, 2016)	Gamification and student motivation	Motivation increased, learning outcomes mixed.	Gamification should support, not replace the teaching process.		✓
(Toda et al., 2018)	The dark side of gamification	Some game elements may negatively affect the learning process.	EFL teachers must carefully choose game mechanics.		✓
(Nicholson, 2015)	A recipe for meaningful gamification	Points and badges fail to support learning.	Meaningful gamification is required in EFL.		✓
(Reinhardt & Sykes, 2014)	Digital game and play activity in L2 learning	Benefits rely on task and interaction design.	Gamification must align with communicative objectives.		✓
(Teimouri et al., 2019)	Second language anxiety and achievement	Anxiety decreased, but proficiency gains were limited.	Gamification supports affective but not always cognitive results.		✓
(Sailer & Homner, 2020)	The gamification of learning: A meta-analysis	Strong effects on motivation, weak effects on proficiency.	Gamification must be based on the theory		✓

1. The existing empirical evidence supports or contradicts claims about the effectiveness of gamification in EFL classrooms

Based on the research findings, it clearly indicates that using gamification enhances students' motivation and their engagement in English as a Foreign Language setting. According to (Domínguez et al., 2013), (Buckley & Doyle, 2016), (Su & Cheng, 2015), (Hung, 2018), (Zainuddin et al., 2020), and (Dehghanzadeh et al., 2021), there are many improvements in internal motivation, positive attitudes among learners, time spent on task when game elements incorporate the points, progress indicators, stories, and challenges. Experimental studies by (Sailer et al., 2017) have presented that certain gamification strategies can boost the motivational elements. Moreover, a meta-analysis conducted by (Sailer & Homner, 2020) supports substantial overall effects on motivation in various educational fields.

Engaging in gamified tasks can help lessen anxiety around speaking a language and boost the desire to communicate are suggested by numerous research. Studies by (Reinhardt & Sykes, 2014) and also (Teimouri et al., 2019) showed that reduced emotional barriers when tasks were presented in a game format. Moreover, (Peterson, 2016) points out that the increased interaction among players in MMORPG settings can align with a greater willingness to communicate.

The evidence indicates potential benefits in a certain environment that supports skill improvements. Research conducted (Su & Cheng, 2015), (Poondej & Lerdpornkulrat, 2019), along with some case studies mentioned by (Peterson, 2016), documented enhancements in vocabulary retention and focused grammar practice when gamified activities included corrective feedback, spaced repetition, and chances for practice. Nevertheless, the evidence suggests that these enhancements typically relate to the particular tasks instead of overall language proficiency improvement. The findings tend to vary when wider measures of performance are applied. According to (Hanus & Fox, 2015) with (Mekler et al., 2017), there is often little to no improvement in overall learning, even with temporary time increases in engagement. Research by (Buckley & Doyle, 2016) and also the meta-analysis by (Sailer & Homner, 2020) suggests that even though motivation effects are significant, the effects on actual proficiency are less pronounced and more unpredictable.

Several studies point out that the successful intervention depends on the quality of its design, its time duration, and its theoretical basis. (Nicholson, 2015) makes a difference between “meaningful gamification,” which covers relevant tasks, storytelling, feedback, and simple reward systems that just give points and so forth. Clear and superficial interventions

(Hanus & Fox, 2015); (Mekler et al., 2017) often guide to short-lived involvement without any real progression in skills, while longer, more thoughtful interventions which are part of the curriculum, more likely to result in observable learning improvements (Domínguez et al., 2013); (Zainuddin et al., 2020).

The literature that has been analysed offers great empirical evidence that gamification positively affects the motivation and emotional aspects of learning English as a Foreign Language (EFL). Several studies across various contexts present that when used gamified teaching techniques, Learners' motivation, engagement, and desire to take part are noticeably increased (Domínguez et al., 2013); (Buckley & Doyle, 2016); (Zainuddin et al., 2020). These findings are consistent across different educational phases, including both secondary level and higher education settings for EFL. More precisely, intrinsic motivation has been boosted by gamification by establishing clear objectives, showing progress indicators, providing immediate feedback, which help learners feel competent and more independent (Sailer et al., 2017); (Ryan & Deci, 2000). Therefore, game elements that enforce teamwork and friendly competition enhance social interaction and connections, which play an essential role in keeping students involved in language learning.

Besides, the evidence concerning language learning results presents a more complex environment. Many studies indicate that integrating gamification into teaching can guide to enhancements in certain language skills and components in English, such as vocabulary and grammar, when it is applied in a grammatical way (Su & Cheng, 2015); (Peterson, 2016); (Poondej & Lerdpornkulrat, 2019). These improvements are typically related to having more opportunities to practice and the repeated exposure that comes from gamified activities. On the other hand, numerous studies indicate that there are no important distinctions in general language skills between gamified methods and traditional teaching methods (Hanus & Fox, 2015); (Mekler et al., 2017). These opposing findings refer that using gamification does not automatically guide to better language results. Rather, its success tends to depends on aspects such as the quality of the instructional design, how well game features connect with educational goals, and how long the intervention lasts. In conclusion, the study evidence backs up the notion that motivation and engagement can be boosted by gamification in EFL settings, but its effects on language skills tend to rely on specific situations and contexts.

2. The implications of gamification for EFL teaching

The findings show that gamification has significant educational value for teaching English as a Foreign Language when used as a strategy appropriate with the theory. In the

studies reviewed, gamification is often seen as a way to improve teaching methods that focus on the students, encourage communication in language learning, and promote interaction. Several studies support that students' engagement, teamwork, and greater opportunities for meaningful language practice, which are all vital for effective EFL teaching, can be boosted through learning the gamification strategies (Hung, 2018); (Reinhardt & Sykes, 2014).

From an educational background, the findings reveal that when the gamification is connected with the language skills and integrated into current teaching methods, such as communicative language teaching and task-based approaches can be working well. Study that focuses on meaningful gamification signed by tasks which cover stories, ongoing feedback, and increasing opportunities shows more lasting learning advantages than those that rely solely on external rewards (Nicholson, 2015); (Zainuddin et al., 2020). In terms of recent studies, the literature reviewed repeatedly points out the need for more specific and theory-based study. Numerous researchers highlight the importance of using longitudinal study designs to explore the lasting effects of gamification on language growth, rather than just immediate boosts in engagement and motivation (Sailer & Homner, 2020). Next, there is significant support for methodologies which combine both quantitative evaluations of language skills and qualitative evaluations of student interaction, viewpoints, and engagement. In summary, the results related to the second research question indicate that gamification shows valuable teaching implications for EFL learning but also uncovers essential voids that future investigations need to fill in order to enhance the evidence and theories in this area.

Discussion

This section presents the findings which are directly related to the two study questions that shape this systematic review article. The discussion not only overviews the empirical data but also guides it within appropriate theoretical frameworks and educational discussions concerning EFL instruction.

1. The empirical evidences support or contradict the effectiveness of gamification in EFL Classroom

Research related to observation leads to a solid conclusion such as using game-like elements in education significantly increase motivation, engagement, and also emotional readiness for learning languages (Domínguez et al., 2013); (Su & Cheng, 2015); (Buckley & Doyle, 2016); (Sailer et al., 2017); (Zainuddin et al., 2020); (Sailer & Homner, 2020). These

findings align well with Self-Determination Theory and Flow Theory which emphasizes having brief objectives, receiving immediate feedback, and maintaining an appropriate level of challenge.

Nonetheless, there are fields where the evidence is lacking or contradictory such as assertions that gamification increases language skills consistently are not backed by data. Many kinds of well-controlled studies and analyses at the component level (Hanus & Fox, 2015); (Mekler et al., 2017); (Toda et al., 2018) point out minimal or mixed outcomes regarding proficiency. Several factors found in the research that can become the reasons for the inconsistencies such as distinctions between superficial and meaningful gamification (Nicholson, 2015), a mismatch between game mechanics and the learning goals, brief intervention periods, and also a preference for self-reported measures over performance evaluations. While the data strongly supports the improvements of motivation through gamification, the endorsement for improving the performance is conditional when gamification is carefully designed based on theory, embedded in the available curriculum, and applied for a sufficient duration.

The results show the strong and consistent support for the idea that various motivational, emotional, and engagement factors in EFL learning can be boosted by gamification. This can be understood by adopting the Self-Determination Theory, which focuses on competence, autonomy, and connection as important elements of intrinsic motivation (Ryan & Deci, 2000). Some activities designed with gamification in EFL often perform these ideas by providing students with task choices, chances to work together, and prompt feedback on their performance. Moreover, Flow Theory increases the understanding of these findings. Aspects of gamification such as specific goals, immediate feedback, increasing challenges, create ideal situations for learning, allowing the learners to become highly immersed in language activities (Mirvis & Csikszentmihalyi, 1991); (Hamari et al., 2014). This deep involvement is particularly essential in EFL conditions, where continuous gain to meaningful use of language is usually lacking.

The mixed findings about language skill findings present a significant drawback. Some studies highlight the improvements in grammar and vocabulary, while other studies do not present much progress in overall language skill. This lack of agreement refers to the fact that using gamification alone does not guarantee language enhancement. As (Nicholson, 2015) recommended, gamification methods which focus on rewards instead of meaningful learning experiences might guide to temporary interest without encouraging thorough language

exposure. Hence, the success largely relies on how well the teaching process aligns with the assignments, their quality, and also how long they are used.

2. Implications for EFL Teaching

The results point to the implications of gamification as an instructional strategy towards the EFL teaching. The illustrations about these implications are discussed below:

The results point out how important the quality and length of instructional design of gamification are in EFL teaching. Gamification that is poorly crafted, especially those that rely mostly on external rewards like points and badges, can present a decrease in motivation or even negative perspectives from learners as time passes (Hanus & Fox, 2015); (Mekler et al., 2017). Besides, the meaningful gamification designs like ongoing feedback, clear narratives, teamwork are more effective in nurturing interest and aiding learning processes, and learner independence (Nicholson, 2015); (Zainuddin et al., 2020). Thus, EFL educators ought to take a mindful approach to gamification, to choose game components that develop internal motivation and educational aims.

Based on the teaching viewpoint, the results point out that gamification should be viewed as a meaningful and helpful teaching method instead of an independent solution. When the gamification is connected to teaching objectives and combined with well-established methods like communicative language teaching and task-based language teaching can be working well. The specific language goals should be linked to elements of gamification, such as recalling vocabulary, ensuring grammatical precision, and also increasing fluency in communication. Moreover, a relaxed learning space that promotes taking risks and being actively involved can be created by gamification. When language activity such as formal tests is presented as games, students might feel more enthusiasm to try out the target language, particularly during speaking tasks. This fits well with sociocultural theories that point out the essentiality of interaction, support, and understanding meaning as a main factor in learning the target language (D. et al., 1979); (De Costa, 2007).

The findings recommended that for successful application, it is essential to have worthy teacher training and backing from the institution. Without the correct teaching skills, gamification aims just a surface way to motivate students and to enhance deeper learning. Hence, it is essential to have professional development which emphasizes course design and mindful practice, ensuring that gamification can be appropriately integrated into English as a Foreign Language classroom.

Conclusion

This comprehensive review of literature aims to compile the existing empirical and implications studies related to gamification as a teaching method in English as a Foreign Language (EFL) classroom, focusing on its effectiveness and implications for EFL teaching. The findings reveal that seven studies from the researchers support that gamification positively influences motivation, emotions, and engagement levels in EFL learning and reduces anxiety. When gamification is crafted and applied with particular language goals in mind, it can encourage students' involvement and create collaborative learning settings that promote language growth. Nonetheless, the review also illustrates that the evidence concerning gamification's effect on language proficiency is inconsistent. While there are eight studies that contradict the gamification that this issue doesn't consistently improve the language performance or proficiency without pedagogical alignment.

These variances recommended that gamification ought to not be seen as a one-size-fits-all solution, but seen as an educational approach whose success depends on the quality of instructional design, the length of its application, and theoretical background. It cannot be ensured that every crucial study related to gamification in EFL context was found and included. The gamification for EFL teaching presents valuable teaching implications for EFL learning but the gamification should support communicative and task-based learning, avoid over-reliance on points, leaderboards, badges, focus on meaningful interaction and feedback, use gamification to reduce anxiety, particularly in speaking tasks, teachers need training in instructional design, not just technology. Therefore, it is recommended that researchers implement mixed-method approaches, which combine numerical and textual data on language skills with specific evaluations of classroom dynamics, students' involvement, and teaching methods.

References

Buckley, P., & Doyle, E. (2016). Gamification and student motivation. *Interactive Learning Environments*, 24(6). <https://doi.org/10.1080/10494820.2014.964263>

D., C. P., Vygotsky, L. S., Cole, M., John-Steiner, V., Scribner, S., Souberman, E., & Wertsch, J. V. (1979). L. S. Vygotsky: Mind in Society. The Development of Higher Psychological Processes. *The American Journal of Psychology*, 92(1). <https://doi.org/10.2307/1421493>

De Costa, P. I. (2007). J. P. Lantolf and S. L. Thorne: Sociocultural Theory and The Genesis of Second Language Development. Oxford University Press, 2006. *Applied Linguistics*, 28(3). <https://doi.org/10.1093/applin/amm027>

Dehghanzadeh, H., Fardanesh, H., Hatami, J., Talaee, E., & Noroozi, O. (2021). Using gamification to support learning English as a second language: a systematic review. In *Computer Assisted Language Learning* (Vol. 34, Issue 7). <https://doi.org/10.1080/09588221.2019.1648298>

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: Defining “gamification.” *Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments, MindTrek 2011*. <https://doi.org/10.1145/2181037.2181040>

Domínguez, A., Saenz-De-Navarrete, J., De-Marcos, L., Fernández-Sanz, L., Pagés, C., & Martínez-Herráiz, J. J. (2013). Gamifying learning experiences: Practical implications and outcomes. *Computers and Education*, 63. <https://doi.org/10.1016/j.compedu.2012.12.020>

Hamari, J., Koivisto, J., & Sarsa, H. (2014). Does gamification work? - A literature review of empirical studies on gamification. *Proceedings of the Annual Hawaii International Conference on System Sciences*. <https://doi.org/10.1109/HICSS.2014.377>

Hanus, M. D., & Fox, J. (2015). Assessing the effects of gamification in the classroom: A longitudinal study on intrinsic motivation, social comparison, satisfaction, effort, and academic performance. *Computers and Education*, 80. <https://doi.org/10.1016/j.compedu.2014.08.019>

Hung, H. T. (2018). Gamifying the flipped classroom using game-based learning materials. *ELT Journal*, 72(3). <https://doi.org/10.1093/elt/ccx055>

Kitchenham, B. (2007). Guidelines for performing systematic literature reviews in software engineering. *Technical Report, Ver. 2.3 EBSE Technical Report. EBSE*.

Mekler, E. D., Brühlmann, F., Tuch, A. N., & Opwis, K. (2017). Towards understanding the effects of individual gamification elements on intrinsic motivation and performance. *Computers in Human Behavior*, 71. <https://doi.org/10.1016/j.chb.2015.08.048>

Mirvis, P. H., & Csikszentmihalyi, M. (1991). Flow: The Psychology of Optimal Experience. *The Academy of Management Review*, 16(3). <https://doi.org/10.2307/258925>

Nicholson, S. (2015). A recipe for meaningful gamification. In *Gamification in Education and Business*. https://doi.org/10.1007/978-3-319-10208-5_1

Peterson, M. (2016). The use of massively multiplayer online role-playing games in CALL: an analysis of research. *Computer Assisted Language Learning*, 29(7). <https://doi.org/10.1080/09588221.2016.1197949>

Poondej, C., & Lerdpornkulrat, T. (2019). Gamification in e-learning. *Interactive Technology and Smart Education, 17*(1). <https://doi.org/10.1108/itse-06-2019-0030>

Reinhardt, J., & Sykes, J. M. (2014). Digital game and play activity in L2 teaching and learning. *Language Learning and Technology, 18*(2).

Ryan, R. M., & Deci, E. L. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology, 25*(1). <https://doi.org/10.1006/ceps.1999.1020>

Sailer, M., Hense, J. U., Mayr, S. K., & Mandl, H. (2017). How gamification motivates: An experimental study of the effects of specific game design elements on psychological need satisfaction. *Computers in Human Behavior, 69*. <https://doi.org/10.1016/j.chb.2016.12.033>

Sailer, M., & Homner, L. (2020). The Gamification of Learning: a Meta-analysis. *Educational Psychology Review, 32*(1). <https://doi.org/10.1007/s10648-019-09498-w>

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research, 104*. <https://doi.org/10.1016/j.jbusres.2019.07.039>

Su, C. H., & Cheng, C. H. (2015). A mobile gamification learning system for improving the learning motivation and achievements. *Journal of Computer Assisted Learning, 31*(3). <https://doi.org/10.1111/jcal.12088>

Teimouri, Y., Goetze, J., & Plonsky, L. (2019). Second Language Anxiety and Achievement. *Studies in Second Language Acquisition, 41*(2). <https://doi.org/10.1017/S0272263118000311>

Toda, A. M., Valle, P. H. D., & Isotani, S. (2018). The dark side of gamification: An overview of negative effects of gamification in education. *Communications in Computer and Information Science, 832*. https://doi.org/10.1007/978-3-319-97934-2_9

Tranfield, D., Denyer, D., & Smart, P. (2003). Towards a Methodology for Developing Evidence-Informed Management Knowledge by Means of Systematic Review. In *British Journal of Management* (Vol. 14, Issue 3). <https://doi.org/10.1111/1467-8551.00375>

Zainuddin, Z., Chu, S. K. W., Shujahat, M., & Perera, C. J. (2020). The impact of gamification on learning and instruction: A systematic review of empirical evidence. *Educational Research Review, 30*. <https://doi.org/10.1016/j.edurev.2020.100326>