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Research Article

Scrum Games in Teaching English for the Students of Non-Linguistic Specialities in Kazakhstan

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Abstract

This article covers the theoretical and practical materials of using Scrum technology in an educational process, and, specifically, the effectiveness of SCRUM games in teaching English. The authors present the results of the survey and the analysis of the advantages of SCRUM technology among the undergraduates of "Philology", "Nuclear physics", and "Space technology" specialties as well as faculty members who teach the English language. The study shows that SCRUM (Scrum, Cards, Rugby, U-tell story, Maze) games provide students with an opportunity to apply language skills in practice. The analysis of the results from the questionnaire proves the efficiency and adaptability of SCRUM games. To be precise, a few SCRUM elements can be useful into the educational process depending on the theme, level of language competency of the students and the objectives of the lesson. SCRUM games help form students' ability to think clearly, perceive information critically, highlight the main idea, find ways to make decisions, and improve basic language skills. SCRUM games in teaching English for the students of non-linguistic specialties should include the professional components of the students' specialty.

Keywords: *Scrum, english, non-linguistic departments, effectiveness, technology.*

Introduction

Today Scrum technology created a vital framework for discussion. Over the past decades, most research in Scrum technology has emphasized its use as a rugby play in which the forwards of

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each side come together in a tight formation and struggle to gain possession of the ball (Merriam-Webster, 1977); a group of attacking players from each team to take control of the ball); a place or situation of confusion and racket); a short meeting held regularly in agile project management to facilitate everyday communication and the flexible reassessment of plans; the mass or formation of players during such a play; the group of players who link themselves together in a scrum. Scrum as a technology was first described by Takeuchi and Nonaka (1986), who highlight the importance of using "a dynamic process" (p. 146) through trials and errors and learning by doing to develop a new product in a competitive world, and compare Scrum to a rugby race. Sutherland (2004), explains it as a sprint to his CEO, when they used Scrum for the first time in 1993. Thus, the abbreviation SCRUM might stand for Sprint Continuous Rugby Unified Methodology, which is built upon the principles of the strategy of rugby play to give the results in a brief period (sprints). In fact, Takeuchi (1986) suggests that the essential points of this rugby race method are "speed and flexibility" (p. 137). Initially, the dissemination of Scrum technology took place among industrial companies around the world, promoting effective collaboration between partners and developing large projects (Cristal et al., 2008; Panahi et al., 2020). Scrum technology at the beginning appeared as one of the agile (flexible) methods to be used in the software development process (Cohen, 2004). Scrum unites the participants to work in a team, enables them to organize daily discussions, collaborate closely with partners and achieve the aims within the deadlines. Schwaber (2004) notes that Scrum is important for socialization and synchronization within the project, team, and company. However, Rubin (2012) informs that Scrum does not follow standardized process where anyone by following the sequence of steps can produce the high-quality products that satisfy all the customers within the limited time and budget. Rubin (2012) argues that Scrum is a framework based on values, principles and practices which serve as a foundation to develop a unique Scrum.

Schwaber (2004) finds Scrum as a quite effortless process that allows managing complex projects. According to May et al. (2019), Scrum is a repetitive and progressive framework with simple roles, activities, artifacts, and rules. To manage the complexity, Scrum involves all the development activities such as evaluation, gathering data, design, and analysis, implementation, testing in each sprint planned in the fixed time.

Scrum is also a team-based approach or team-based learning. In its case, team-based learning means active learning in a small group to ensure that learners get conceptual knowledge

through practical activities such as "individual work, teamwork and immediate feedback" (Parmelee et al., 2012). Schwaber (2004) suggests that Scrum unleashes the brainpower of the team members to solve a problem and accept challenge so they can figure how to deal with that challenge in a creative way that a central control may not even know since team members have more hands-on knowledge and experience.

Mann (2005) analyzes qualitatively and quantitatively Scrum practices, and conclude that the introduction of Scrum was helpful as it improved the customer satisfaction and at the same time decreased the overtime for the developers, so they started working at a sustainable pace. Stapleton (1997) agrees that the initiation of such technology in private companies improves the management of the development process and customer relationship.

In the last few years, the researchers have developed distinct aspects of Scrum technology in education. It has been explored that Scrum is useful for maintaining student motivation (Baird, 2012); Scrum can be used for teaching computer courses (Von, 2013); Scrum can be used as a simulation game to teach university students (Paasivaara, 2014); bringing Scrum into the classroom may provide students with a competitive advantage (May, 2019); Scrum methodology can help encourage students to become collaborators (Pope-Ruark, 2011); Scrum can be used to teach media (Herrmann et al., 2017); Scrum shows the efficiency of teaching as a new technology (Belyaeva, 2019), and others. Therefore, the introduction of Scrum technology in teaching is becoming a principal issue as it shows that this technology develops the skills of teamwork, communication, planning and organizing, co-operation, and adaptability. The most current educational games use Scrum technology and the agile process. These games are more board games, but not all of them are helpful for teachers and the development of students' skills.

Hence, the main goal of this paper is to find the most effective scrum games in teaching English. Using games in teaching creates the opportunity for students to take part and play a specific role in a real situation to improve the quality of the learning process. Learning through the games enables the students to get what is taught, putting aside their fears and anxieties, and devoting themselves to the games (Fernandes, 2010).

Scrum Technology in Teaching English

Teaching English for the students of non-linguistic specialties requires using the relevant approaches and techniques. Students learn grammar and phonetic rules, new professional vocabulary in English, but they do not realize how and when to apply these rules and words in

real-life situations. In this case, using Scrum technology in teaching English is one of the alternatives to integrate theory and practice. As Scrum uses the principles of the strategy of rugby play, students should play a certain role in the educational process. All English materials must be easy to understand and remember so to attract students' attention and improve the quality of learning. Scrum technology gains popularity because of its life-cycle model which consists of a series of stages to perform the targeted work (Schwaber, 2004). In the educational process, a life-cycled model shows all activities in teaching from planning to maintenance where each game has its rules, functions, items and required mechanisms.

In this study, the abbreviation SCRUM stands for Scrum, Cards, Rugby, U-tell story, and Maze. These games are popular in teaching English for the students of non-linguistic specialties.

Scrum game is a traditional board game that needs a table and a dice. The players move along the board performing tasks in the squares. The squares are the sprint planning activities. The goal of this game is to do all the tasks passing through impediments (go back, wait, front pass, rear pass, and others) before the game ends. This game is a valuable tool at the end of the academic module. Each module consists of 7 units or themes. The students of "Nuclear physics" specialty study Nuclear English (Gorlin, 2005). Based on the experiment, Scrum game allows the students of "Nuclear physics" specialty to have experience of working in Scrum sprints and discussing questions in a team. The first module of the "Nuclear physics" students contains the themes such as the greenhouse effect, uranium mining, fuel manufacturing, reactor management, transport of radioactive materials, reprocessing, and decommissioning (Gorlin, 2005). A team selects one of the themes from the backlog cards. Backlog cards include the earlier themes from the module. The purpose of this game is to present the student's progress and give the analysis (SWOT) of the researched problem (Table 1).

Table 1

Backlog Cards for the Students of "Nuclear Physics" Specialty

The methods of chemicals introduction into the patient's body	The types of therapy	An important niche nuclear market	The country which quadrupled its nuclear output	The order of uranium mining process

The location and functions of Mc Arthur River	UK's only light water reactor	Vehicle for lifting and carrying boxes in uranium mining	The design of the main control room	The amount of energy deposited in a particular part of human tissue
Fermi's leading contribution	This machine is used for taking apart the reactor and used from a distance	The responsibility of the supervisor in the control room	The role of a shift manager	The duration of training course for operators
The lifting capacity of a little crane to remove the heat exchanger	The most economical method of enrichment	The Oklo phenomenon	LHC	The waste product extracted from the pit during the mining process

Cards game is a competitive game where each student has a personal role. This game uses three types of cards (event, problem, and solution). Students choose one of the events and present problems and solutions. The cards have the defined problems and solutions. So, students work in a team to find the right problems and solutions from the cards (Table 2).

Table 2

Card Game

	Topic: Restoring Cinema City
Event	Cinema City is on Imanov Street, Nur-Sultan city. It is in the centre of the city. Its building is near the main street (Republic Avenue). It was constructed in the 2000s. It was one of the biggest and newest cinemas for a few years. This Cinema City had only one big screen and was closed two years ago because it was uneconomical to operate.

Problems	- Cinema City is next to the city highway and became a parking place for the cars of drivers; - The availability of only one big screen in the cinema can significantly reduce the prospects of the development of a new cinema in this part of the city.
Solutions	The solution is to increase the number of screens to 5. The largest hall will hold 200 seats. In other halls, the number of seats will be 100. As it is planned, the most popular movies will be shown in the largest hall and other movies in the small ones. Today, all new cinemas have multi-screen designs. Screening of a popular movie attracts a large audience of film amateurs. The number of filmgoers may be a huge amount in a week and can bring even the annual income in a short time. The new cinema can show at least 4 different movies simultaneously. In this way, it is possible to avoid uneconomic operations as it happened with the old one. From an economic point of view, we think that this new cinema may get more financial benefits. First, its location in the centre of the city will satisfy the leisure demands of the residents of this area.

During this card game, students distribute the role of solution-makers. Students work in the team following the event and being the part of problems. Students learn how to analyze problems, find the right decision, follow the steps, and compete with another group of teams.

Rugby is an exciting game in teaching to stimulate an agile process. The goal of this game is to pass the ball (describing the detail) through the team. There are two teams of 10 students. During the game, each student gives associative words or synonyms to the proposed word. Each student should describe the word by one noun or adjective and pass the ball to another student. If all students in the team give the right explanation, the team gets 10 scores. The teacher controls the process and puts all the scores on the blackboard (Table 3).

Table 3

Rugby Game Results

	Scores			**In total**
	Sprint 1	**Sprint 2**	**Sprint 3**	
Team 1				
Team 2				

After each sprint, the team can discuss their performance, brainstorm the ways to improve their results and measure their effectiveness as a team.

U-tell story game is the most widely used and effective means of teaching foreign languages. The research has shown that there are positive effects of telling stories to develop language skills. Using stories in learning enhances language learning, creates a positive atmosphere in the classroom and makes the language process enjoyable (Ellis, 1991). Telling stories can develop language skills and help students broaden their range of vocabulary (Cameron, 2001). Moreover, telling stories is an effective tool for learning grammar materials. Stories are a rich source of language structure and repetitive sentence patterns (Mart, 2012). Stories are the most valuable sources to practice listening, writing, reading, and speaking skills (Slattery & Willis, 2001). Stories can help activate the language acquisition device to induce language elements from the data (Krashen, 1981). The teachers of philological faculty often use story games to teach English to their students. All topics in educational curricula relate to students' future professions (Evans & Dooley, 2014). One of the most useful activities to check students' comprehension is retelling stories by throwing the ball and continuing the story (Al Harrasi, 2012). In practice, teachers teach students to retell stories using pictures, tables, schemes, and others. The book "Pathways to literature" (Evans & Dooley, 2015) has audio and video materials to watch and listen to stories. After watching a story, a teacher responds to some comprehension questions related to the story and gives some instructions to students to retell this story using their own schemes, tables, illustrations or pictures (Figure 1).

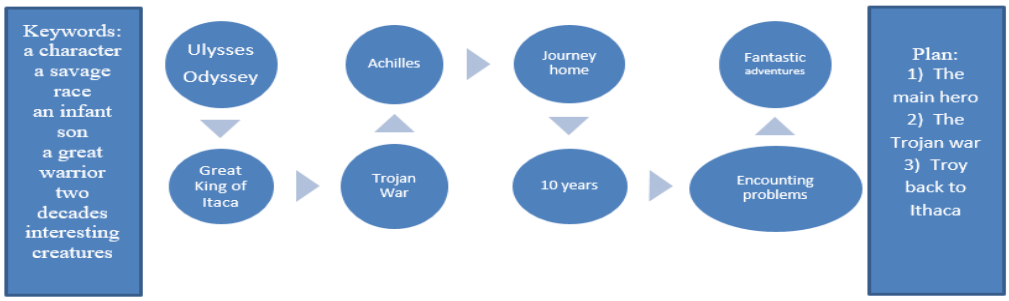

Figure 1. The Scheme of Retelling Story "Ulysses" by L. Tennyson

Thus, a U-tell story is a beneficial and valuable mechanism for improving the four-skill activities in English language competency.

Maze game is a group game where students work in a team. During the game, students should follow the correct form of questions to make own way from the start of the maze to the finish (Figure 2).

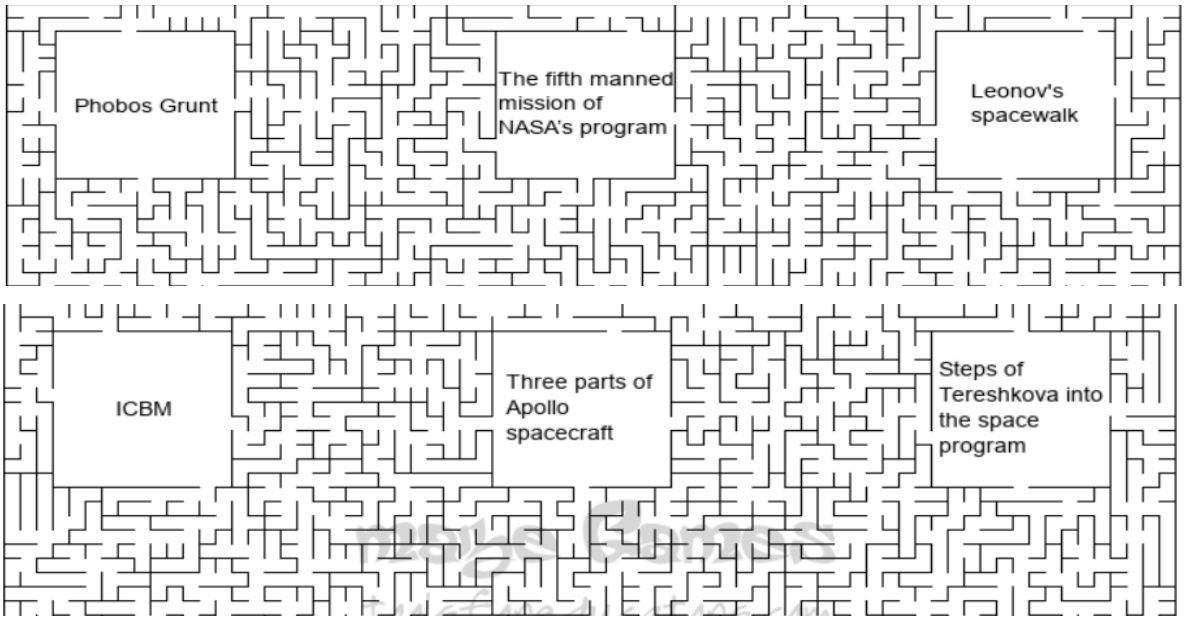

Figure 2. Maze Game for the Students of "Space Technology" Specialty

Students compete with themselves and try to find the right suitable path. Maze game provides immediate feedback to check students' knowledge. It encourages cooperative learning, learning to cope with a single problem, and navigate through a series of obstacles. Especially the students of "Space technology" specialty can use this maze. It also has a background information questionnaire.

SCRUM games are popular in teaching English in higher education. Therefore, the participants of the questionnaire to find the most effective Scrum game in teaching English were the teachers of foreign language department and their students.

The results of the questionnaire showed that all Scrum games are used in teaching English (Figure 3).

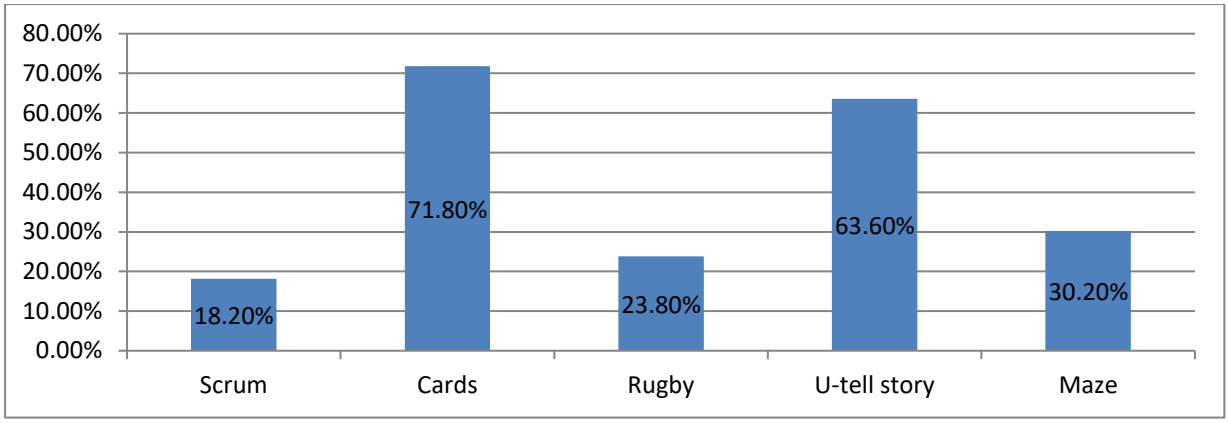

Figure 3. The Percentage of Using SCRUM Games in Teaching

The most often used games in teaching English are Cards (71,8%) and U-tell story (63,6%). At the same time, teachers use Scrum (18,2%), Rugby (23,8%), Maze (30,2%). The main challenge is that not all teachers can use these games in teaching. The other challenges are the level of students' knowledge, teachers' proficiency as well as experience. The use of these games in teaching English for the students of non-linguistic specialties requires not only the professional knowledge of English but also deep comprehension of the students' specialty. Despite all those challenges, teachers use all SCRUM games in English classes.

SCRUM games are an alternative to connect grammar and professional vocabulary in teaching English. Students develop skills of team working. They have the opportunity to gain experience in planning, organizing, cooperating and adapting in a different situation. These games are especially useful in improving the basic skills of learning English (Figure 4).

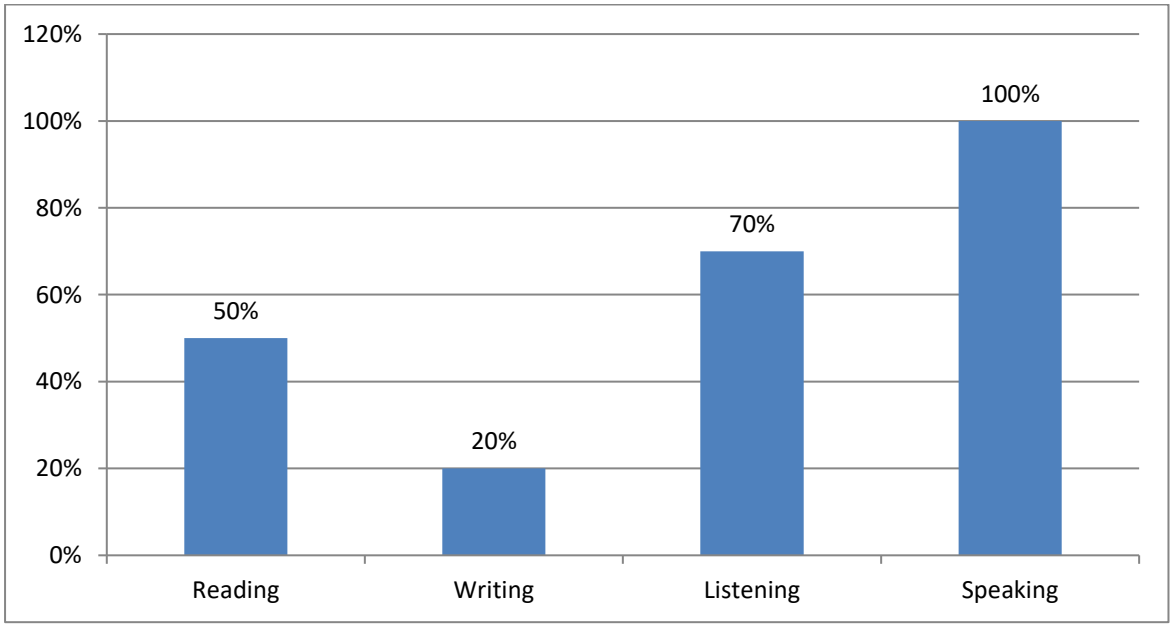

Figure 4. The Most Effective SCRUM Games in Improving the Basic Language Skills

Teachers consider that SCRUM games are effective in improving speaking (100%) and listening (70%) skills of students. This is because students listen to a teacher during these games, then they listen to each other and speak, discuss, and communicate in a team.

The students of different specialties also participated in this study to find the efficiency of SCRUM games in learning English. Overall, we had 82 bachelor degree students in this study (first-year students from "Space technology" specialty (25); second-year students from "Philology" specialty (36); third-year students from "Nuclear Physics" specialty (21). It is worth noting that English is taught for the first-year students as a general subject whereas second and third- year students are taught professionally-oriented English. We applied Likert scale to assess the efficiency of SCRUM games from the viewpoints of the students (5 - a very high efficiency; 4 - high efficiency; 3 - average efficiency; 2 - low efficiency; 1 - very low efficiency; to 0 – inefficient) (Figure 5).

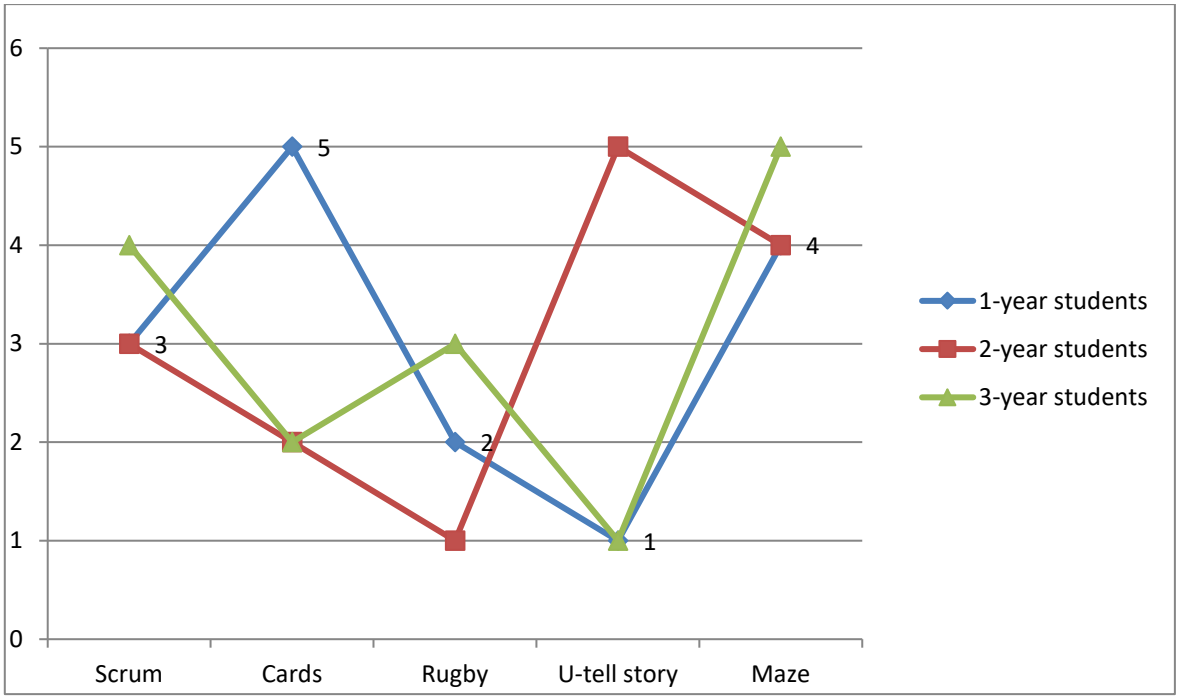

Figure 5. The Assessment of SCRUM Games from the Students' Points of View (from 5-0)

In general, students believe that these games are remarkably effective. The students of "Space technology" specialty think that Cards game has very high efficiency in learning English, whereas the students of "Philology" specialty prefer U-tell story game, and the "Nuclear physics" specialty students consider Maze game as the most effective. The choice of the students depends on their specialty. "Philology" specialty students often read literature and learn poems.

U-tell story game is very helpful for philologists. The students of "Space technology" specialty work with different data, design, analysis, implementation, and testing as in card games. The "Nuclear physics" specialty students are interested in innovative technology and nuclear applications. They are always in a maze to find, search, develop and create. In other words, physics should be in the agile process. U-tell game is on the very low efficiency category from the point of "Space technology" and "Nuclear physics" specialty students. None of the students points the games as inefficient. This means all SCRUM games can be used in teaching English (Figure 6).

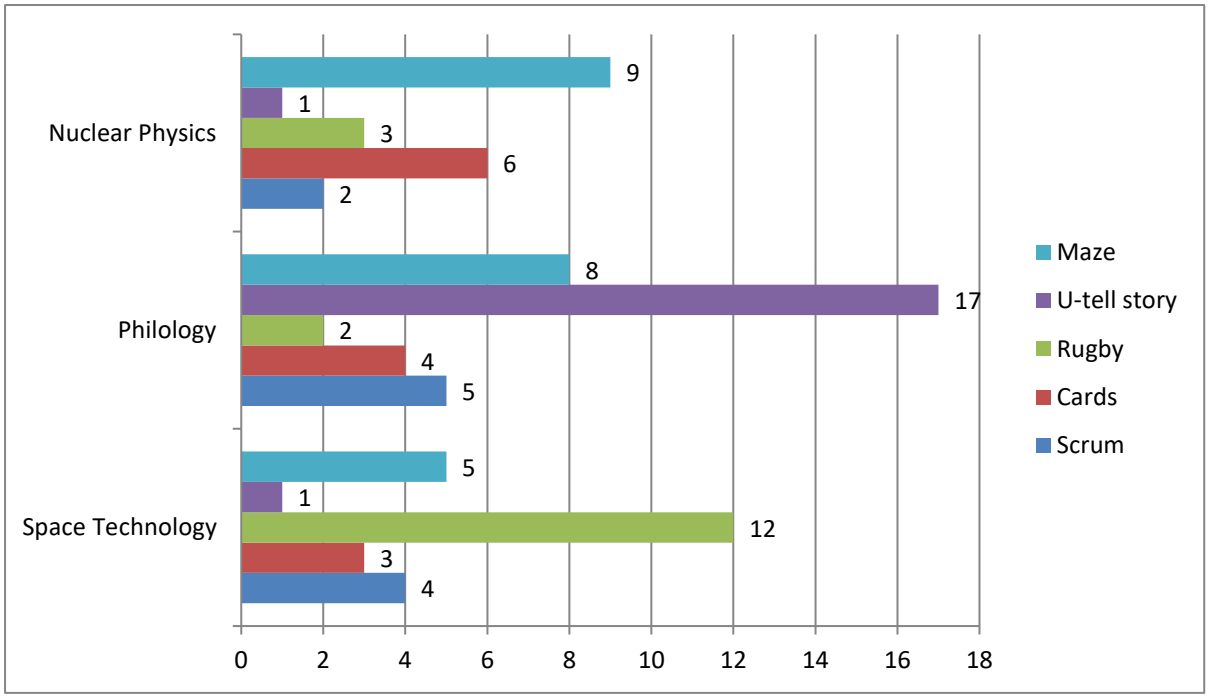

Figure 6. The Most Effective SCRUM Games in Teaching English

Conclusion

The study shows that SCRUM (Scrum, Cards, Rugby, U-tell story, Maze) games provide students with an opportunity to apply language skills in practice. The analysis of the results from the questionnaire proves the efficiency and adaptability of SCRUM games. To be precise, a few SCRUM elements can be applied into the educational process depending on the theme, level of language competency of the students and the objectives of the lesson.

SCRUM games help form students' ability to think clearly, perceive information critically, highlight the main idea, find ways to make decisions, and improve basic language skills. SCRUM games in teaching English for the students of non-linguistic specialties should include the professional components of the students' specialty.

References

1. Al Harrasi, K.T.S. (2012). Using stories in English Omani curriculum. *English Language Teaching, 5*(11), 51-59.
2. Baird, A., & Riggins, F.J. (2012). Planning and sprinting: Use of a hybrid project management methodology within a CIS capstone course. *Journal of Information Systems Education*, *23*(3), 243-257.
3. Belyaeva, I.G., Samorodova, E.A., Voron, O.V., & Zakirova, E.S. (2019). Analysis of Innovative Methods' Effectiveness in Teaching Foreign Languages for Special Purposes Used for the Formation of Future Specialists' Professional Competencies. *Education Sciences*, *9*(3), 171.
4. Cameron, L. (2001). *Teaching languages to young learners*. Cambridge University Press, 274.
5. Cohen, D., Lindvall, M., & Costa, P. (2004). An introduction to agile methods. *Advances in Computational*, *62*(03), 1-66.
6. Cristal, M., Wildt, D., & Prikladnicki, R. (2008). Usage of Scrum practices within a global company. *In IEEE International Conference on Global Software Engineering*, 222-226.
7. Ellis, G., & Brewster, J. (1991). *The Storytelling Handbook for Primary Teachers Cassette*. Penguin Books, 212.
8. Evans, V., & Dooley, J. (2015). *Pathways to Literature.* Express Publishing, 232.
9. Fernandes, J.M., & Sousa, S.M. (2010). Play scrum - a card game to learn the scrum agile method. *Second International Conference on Games and Virtual Worlds for Serious Applications*, 52-59.
10. Gorlin, S. (2005). Nuclear English: Language skills for a globalizing industry, 196.
11. Herrmann, I., Münster, S., Tietz, V., Uhlemann, R. (2017). Teaching Media Design by Using Scrum. A Qualitative Study within a Media Informatics Elective Course. *International Association for Development of the Information Society*, 227-232.
12. Krashen, S.D. (1981). Bilingual education and second language acquisition theory. *Schooling and language minority students: A theoretical framework*, 51-79.
13. Mann, C., & Maurer, F. (2005). A case study on the impact of scrum on overtime and customer satisfaction. *In Agile Development Conference (ADC'05)*, 70-79.
14. Mart, C.T. (2012). Encouraging Young Learners to Learn English through Stories. *English Language Teaching*, *5*(5), 101-106.
15. May, J., York, J., & Lending, D. (2016). Play ball: bringing scrum into the classroom. *Journal of Information Systems Education*, *27*(2), 87-92.
16. Merriam-Webster, M.W.S.C. (1977). Dictionary. *Springfield, Massachusetts, USA: G & C Merriam Company*, *830*.
17. Paasivaara, M., Lassenius, C. (2014). Communities of practice in a large distributed agile software development organization–Case Ericsson. *Information and Software*

Technology, *56*(12), 1556-1577.

18. Panahi, H., Keikavoosi-Arani, L., & Salehi, L. (2020), Sunscreen use: a theory-based interventional study using HAPA. *Health Education, 120*(3), 217-227. https://doi.org/10.1108/HE-03-2020-0013
19. Parmelee, D., Michaelsen, L.K., Cook, S., & Hudes, P.D. (2012). Team-based learning: a practical guide: AMEE guide no. 65. *Medical teacher*, *34*(5), 275-287.
20. Pope-Ruark, R., Eichel, M., Talbott, S., & Thornton, K. (2011). Let's Scrum: How Scrum Methodology Encourages Students to View Themselves as Collaborators. *Teaching and Learning Together in Higher Education*, *1*(3), 5.
21. Schwaber, K. (2004). *Agile project management with Scrum.* Microsoft press, 160.
22. Stapleton, J. (1997). *DSDM, dynamic systems development method: the method in practice*. Cambridge University Press, 163.
23. Sutherland, J. (2004). Agile development: Lessons learned from the first scrum. *Cutter Agile Project Management Advisory Service: Executive Update*, *5*(20), 1- 4.
24. Takeuchi, H., & Nonaka, I. (1986). The new product development game. *Harvard business review*, *64*(1), 137-146.
25. Von Wangenheim, C.G., Savi, R., & Borgatto, A.F. (2013). SCRUMIA—An educational game for teaching SCRUM in computing courses. *Journal of Systems and Software*, *86*(10), 2675-2687. *Journal of Systems and Software*, *86*(10), 2675–2687.