

STEAM APPROACH TO THE DEVELOPMENT OF FUTURE TEACHERS' ENGLISH LANGUAGE SKILLS

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ABSTRACT

The article contains further study of the effectiveness of the STEAM approach in the development of English language skills in future teachers. The conditions and opportunities for developing English language skills combined with soft skills (communication, critical thinking, creativity and collaboration) require further research.

KEYWORDS: *STEAM Approach, English Language Skills, Students, Design Method, Teamwork Method.*

INTRODUCTION

The world is integrated, so teaching should be too. No learning takes place in a vacuum. Instead, students should always be using their knowledge of the world to connect ideas.

This is especially true when it comes to STEAM subjects – science, technology, engineering, art and design and maths. After all, the subjects are naturally connected. For instance, scientists rarely do anything purely scientific without at least a speck of engineering, technological tools, or creative design, just as composers don't write music without thinking mathematically.

The STEAM classroom is naturally student-centered because of its strong focus on project-based and hands-on learning. Students are actively involved at all stages of the learning process. Effective and communicative world language classrooms typically already utilize many collaborative types of projects (such as puzzle-solving tasks, group discussions, and cooperative learning activities) and realia from the target culture or simply to serve as visuals to enhance communication and understanding. Problem-solving is a large component of the STEAM approach and also goes along beautifully with the goals of world language instruction. For example, students might use the target language to creatively solve open-ended problems or to create a product such as a report, a poster, or a video. The end-goals of STEAM education lead to natural connections with our world language teaching goals, such as higher-level thinking, oral communication, and managerial or leadership skills. Risk taking is also a key element of STEAM approaches, and fits well with the end goal of using language extemporaneously in the target culture. Picture yourself as a new speaker of a language suddenly being immersed in the target culture. You will need to take some risks (with language and otherwise) in order to meet your needs for food, shelter, clothing, companionship, and so forth. STEAM education promotes

risk-taking as opposed to there being a perfect solution and one answer to every problem. In the world language classroom, there are many solutions to problems, just like there are in real life when we use language to meet our needs. [1]

Methodology

Most people understand how STEM (science, technology, engineering and maths) subjects are connected. But for students to develop STEM skills, we need to integrate these subjects with the arts – and vice versa. The arts is an umbrella term for things like dance, music, drama, movement, painting, drawing, crafting, sculpture, and design.

Moreover, as we mentioned above, scientists, technology developers, engineers and mathematicians need to be creative to innovate. Artists also need to observe, hypothesise and experiment – which in many ways is similar to a scientific process. [2]

There are lots of benefits to creating connections across STEAM subjects and content areas in your curriculum. For example:

- **Our brains are wired to make connections.** When we connect two pieces of information in our brain, we are much more likely to understand, remember, and be able to apply this knowledge. So, combining subjects mimics real life and prepares the brain for a world in which knowledge is integrated.
- **Work is transdisciplinary.** Even if an individual chooses to become a scientist, there will most probably be a lot of maths in their job. Perhaps they will need engineering skills and creativity. They might have to use new technologies too. STEAM integration shows learners that whatever career they decide to follow, they will probably be working across disciplines.
- **It helps build problem solving skills.** For learners, using what they know in one area can help them to solve new problems and become successful in other areas. By discovering inter-relationships in school, learners discover how different areas interweave in the real world. And once they are used to seeing these connections, it is much easier for them to find connections themselves.
- **Integrated learning makes school more interesting, relevant and meaningful.**

Studies have shown that it increases learners' and teachers' interest, motivation and enjoyment of school.

Learning objectives are a good starting point to develop STEAM connections. For example, when teaching the topic of animals and their habitats, there are lots of STEAM connections you can make. For example, you could ask students to build a habitat for an animal (engineering), decorate the habitat (art and design) and include what that animal needs to survive (science). You could then have students present their habitat creation to the rest of the class – practicing their English language presentation and speaking skills. [3]

Here are some ideas for instruction for world language teachers who would like to bring more project-based and STEAM-oriented activities to their classrooms:

- Students can create with language by writing advertisements, skits, and “how-to” tutorials which they can present in audio or video format using technology.
- Students can use the target language to solve open-ended problems, such as how to build a structure or create a piece of art.
- Students can work in pairs or

groups to give and take directions for a task using hands-on materials (Legos, erector sets, robotics kits, or Minecraft). For example, one student might have the completed product in front of her and must give directions/descriptions in order for the other student to successfully build a replica of the product. The students then compare the results with the prototype. When working in a virtual building world (such as Minecraft) students can speak in the target language over Skype or text-based chatting programs. • Students design open-ended products using hands-on materials (perhaps using recycled objects) and then describe what they are building/making using audio, video, presentation apps (such as PowerPoint or Prezi) or paper posters. 4 • Students use screen-capture apps (such as Jing) to record audio and video of themselves performing a task on the computer. For example, a student might create a tutorial on how to use Microsoft Word in the target language. • Students can create music videos in the target language, which brings the potential for integrating both technology and the arts (music, visual art, and dance). In addition to these project-based ideas, the gamification aspects of STEAM can be utilized both in and out of the world language classroom for practice of the target language. Gamification has become increasingly popular as a tool for motivation and engagement in all types of learning, and can be used by individuals or groups. [4]

CONCLUSION

Depending on their proficiency level, learners can also learn language skills used by a range of STEAM professions. Take a scientist, for example. These language skills include listening to others and negotiating, reading and interpreting text or data, writing down hypotheses, labelling designs, recording data, sharing explanations, communicating ideas and solutions, and publishing results.

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