

國立教育廣播電台 英語奇育記

教育新聞中英對照參考

- 教育新聞中文摘要：

本集新聞將根據研究介紹移民美國的學生在理科的表現，根據 Stanford University 和 Duke University 的研究，美國的移民學生往往在理科的表現上會更加突出，原因是移民學生在語言文化與生活適應上經常會遇到困境，所以就會選擇讓他們感到相對舒適的方式學習，並透過 STEM 系統培養好奇心、溝通技巧、毅力和問題解決能力，而當老師能提供學生的學習鷹架，也可以讓學習更有效率。

- 教育新聞英文摘錄：

Yuka : Today, the title of our news is “Immigrant kids in U.S. deliberately build STEM skills” .

Sherry : And STEM stands for Science, Technology, Engineering and Mathematics.

Yuka : In the research conducted by Stanford and Duke University, it is found that immigrant students tend to do well on these subjects. 研究指出，移民美國的學生他們在理科的表現上會更突出。

Sherry : The researchers also say that within that group, 36 percent of students majored in STEM related subjects when they get into college.

Yuka : Sherry, do you want to guess why this may be a common situation happen on the immigrant kids in the U.S? I think it’ s quite logical.

Sherry : Is that because many immigrants are Asians? I think typically Asians kids are good at STEM subjects.

Yuka : HMM, I think it’ s half right. But there is a reason can explain why Asian or other immigrants may do better on STEM subjects. According to the statistic made by U.S government, in 2017, most immigrants come from Mexico and China, and the total number is about 14 million people.

Sherry : That' s a big number! By the way, it hasn' t included the immigrants from other countries!

Yuka : True, but the most important thing is that no matter they are Mexican or Chinese, their mother tongue are not English. So it would be hard for them to adapt the whole new environment at the beginning.

Sherry : Yeah, I can understand that. Language is a tool for you to communicate with others, but it' ll be hard for you to find a sense of belonging and achievement when you don' t know what others are saying.

Yuka : Yes, and speaking of the subjects in school, besides the subject English, many other subjects like history and civics also rely on a certain level of English ability to fully understand the deep meaning of them.

Sherry : But for STEM, it' s quite different. Number is more universal than the language English. Students in every country study math or science.

Yuka : So the immigrant students rationally decide to build on skills they are relatively more comfortable with, such as math and science.

Sherry : According to the research, the immigrant students tend to take more STEM courses in high school, and then they get into the related department in higher education. Eventually, they may become experts in these fields.

Yuka : Hmm, 就像是心理學家阿德勒說的補償作用，如果學生在語文領域上比較沒有自信，他自然而然會在其他方面下更多努力，變得更好。

Sherry : Yeah. I' ve also seen a news saying that “ Early STEM Provides 'Critical Foundation' for Future Learning” .從小開始學習科學、科技、工程和數學的課程對學生未來的發展是很有幫助的喔

Yuka : 喔~為什麼呀?

Sherry : Community for Advancing Discovery Research in Education,(funded by National Science Foundation in the USA), conducted a research showing that quality STEM

experiences in pre-K through grade 3 can offer a "critical foundation for learning about these disciplines in ways that facilitate later learning."

Yuka : 所以說有品質的 STEM 學習在幼稚園到小學三年級是很關鍵的學習囉?

Sherry : Yeah, there are many benefits if kids start learning STEM at an early age, for example, it supports development of a mindset that includes curiosity, communication, persistence and problem-solving, among other habits

學習 STEM 是可以培養好奇心、溝通技巧、毅力和問題解決能力的~

Yuka : I think it' s quite true. Because I know that for an engineer, sometimes it takes them weeks to figure out a bug in a program. Also, it sometimes takes us plenty of time to solve one interesting math problem in old high school day.

Sherry : Yes, Yuka, do you enjoy the progress of solving math problems?

A : Haha, that' s a sensitive question. Actually, not really, I' m not that kind of Math person. How about you?

Sherry : Me either. It' s too hard for me.

Yuka : That' s totally fine XD

By the way, I noticed that the research says it is not only important to have STEM stimulus at an early age, but "quality early STEM" is important as well.

Sherry : 恩恩，對耶，其實不只要在小時候就接觸理工方面的科目，但重點是好的學習與課程品質。

Yuka : Yes, the researchers say that "quality early STEM" requires teachers' expertise in creating interactive scaffolds for students during lessons.老師提供學生的學習鷹架是很重要的。

Sherry : Here are some core ways to scaffolding in STEM lessons, one of them is encouraging children to share on their observations and ideas, even if their answers may be "incorrect"

Yuka : You mean encouraging children to be a risk taker? Even though you may be wrong on something, but it's still great if you can express your findings and how you arrive your findings.

Sherry : Indeed~ I think it is a good practice of STEM skills because it not only takes a lot of courage to say it in front of others but it shows children how it works in STEM by considering different possibilities and their supporting evidences in order to solve a problem.

Yuka : In that case, I think teachers' attitude is very important~ if the teachers create a supportive learning environment, and offer a carefully designed lessons with many good questions, students will be willing to share their observations and come up with productive ideas! Sherry, what else do you think a teacher should pay attention to when creating a supportive environment?

Sherry : Hmm, I think providing all children with equal opportunities to participate in STEM experiences are important.

Yuka : Why would you say that?

Sherry : Because in my experience, I found math teachers may focus more on the high achievement students.

Yuka : I think I can imagine that teachers like to welcome some talented students to solve the math problems on stage XD

Sherry : Yeah, So STEM is important, but teachers' scaffolding is also an important part.

Yuka : That's right. Hope you enjoy the news of today.