High Agency in Student Learning Games Improves Enjoyment but Not Necessarily Learning

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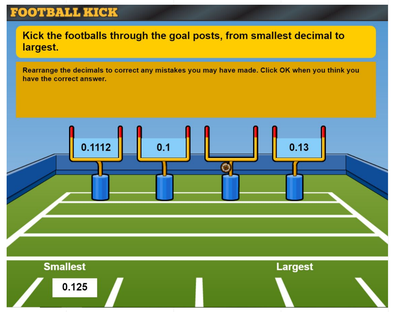
Summary

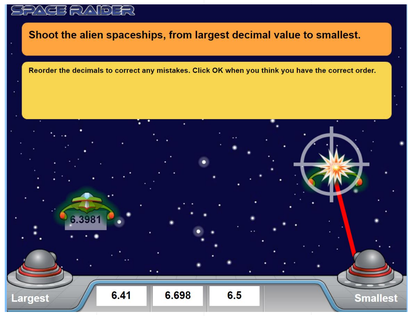
'Agency' is a word to describe the ability students have in making choices. We looked at four different patterns of behavior, based on students in a high agency condition from a previous experiment, to see how their paths affected learning and enjoyment. Students who exercised agency in decimal games tended to have increased enjoyment in those games, but not necessarily better learning outcomes.

Background

Agency is often associated with enjoyment and tied to the environment that games are usually played in. However, with educational games, there is much debate on how much freedom students should be given.

Decimal Point is an educational game built to help middle school students have a better grasp of decimals.





In the high agency condition, students could choose the order of the games that they played and when they could stop playing. In the low agency condition, a path was mapped, giving users a sequence of games.

In a previous study, we found no learning or enjoyment difference between individuals in the high agency and low agency cases.

Methods

In this study, we looked at different game sequences students selected in the high-agency conditions, and if those had an impact on learning and enjoyment.

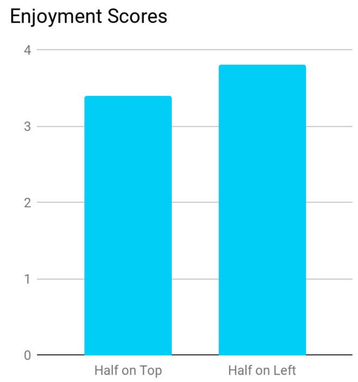
- Our team helped with the development of Decimal Point.
- Tested with 235 middle school students in high agency condition. Categorized general paths students took when they have freedom to choose the order they play in.
- Four clusters of typical behavior of the students.

References

Wang, Y., Nguyen, H.,Harpstead, E., Stamper, .J, & McLaren, B.(2019). How Does Order of Gameplay Impact Learning and Enjoyment in a Digital Learning Game?

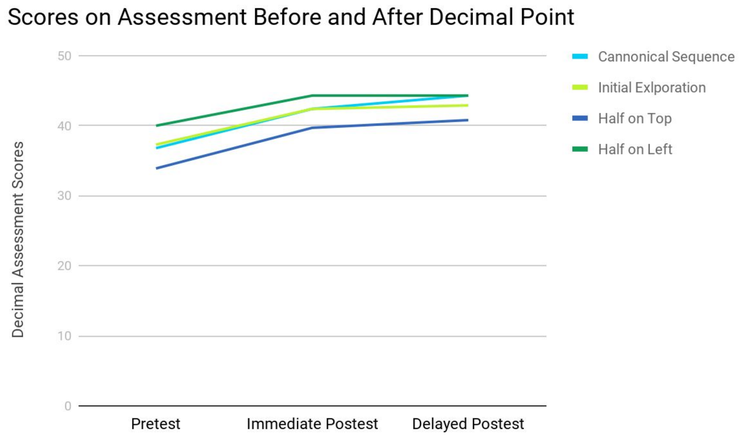
Results & Conclusion

- Among the groups of students who stopped early, those who moved from the assigned game sequence and switched themes more often reported higher enjoyment than those who did not.



- No differences in learning between two groups.
- Suggests that those who stopped earlier were better at self-regulating their learning.
- Full game may have had too many problems, leading to over-practice and less efficiency.

More research needed on how amount of instruction and types of choices affect learning and enjoyment.



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