

Citation: Jin, Y., Lee, S.Y.C., Lee, M. & Chu, S.K.W. (2018). *The Academic Impacts of Oxford Achiever on Hong Kong Primary School Students: A Self-determination Case Study*. Paper presented at the ASIS&T AP 2019 regional conference, Phnom Penh, Cambodia.

The Academic Impacts of *Oxford Achiever* on Hong Kong Primary School Students: A Self-determination Case Study

Yin Jin

Faculty of Education, The University of Hong Kong

Min Lee

Faculty of Education, The University of Hong Kong

Shum Yi Cameron Lee

Faculty of Education, The University of Hong Kong

Samuel K.W. Chu

Faculty of Education, The University of Hong Kong

ABSTRACT

Gamification is the application of game design elements in non-gaming contexts. To study the impacts of gamification on L2 early English learners, this paper examines the impacts of a gamified e-learning tool on primary school students, and presents a case that argues gamified e-learning can effectively help students to learn English. Findings from reading tests, questionnaires, and focus group interviews confirm that argument, providing valuable insight for future e-learning design. Further studies need to be constructed on a longitudinal scale and scrutinize specific game elements to study their impacts on English learning.

KEYWORDS

E-learning, Gamification, Self-determination, Engagement

INTRODUCTION

E-learning is increasingly popular in Hong Kong's primary and secondary education scenes. In bracing themselves for a boundary-shifting educational landscape that favors technologies over prints, primary and secondary schools naturally tap into e-learning as the next step of their curricular development (Kong et al., 2014, p.193). As stated by Hong Kong Education Bureau, ICT in education evolved from gaining acceptance of the use of ICT as a tool in the First ICT Strategy (1998–2003) to unleashing students' learning potential through tech-supported education in the Fourth ICT Strategy (2014 onwards) (Education Bureau, 2014). Moving forward, the Education Bureau aims to have students develop competencies in areas like selfdirected learning, through ICT. Curriculum planners, academic publishers, and educators are thus actively seeking out possible ICT tools to bring about self-directed learning experiences. To that effect, Oxford University Press (China), a local academic publisher, launched the "Oxford Achiever 'Assessment for Learning' System" (OA) in 2012 to help primary and junior secondary school students to self-learn English reading, writing, listening, speaking, grammar, and vocabulary ("Oxford Achiever", n.d.). From the perspective of the students, how exactly an e-learning tool like OA can help them learn English is an underexplored domain of research in the context of Asia. Backdropped by this, the present study examines the academic impacts of OA on Primary Three (P3) and Primary Six (P6) students in Hong Kong.

LITERATURE

Breaking the traditional pen and paper approach, online learning channels have presented people with new class format, structure and delivery that have unprecedented impacts on learning (Shearer et al., 2014). One such impact is the changes to instructional styles. In that picture, teachers can get bogged down by uncommitted students in class whose life is increasingly tech-mediated (Fuchs, 2016); actualizing learning outcomes can thus become difficult. But gamification may be a way out.

Gamification

Gamification is the utilization of amusement mechanics and components in non-entertainment contexts (Dicheva et al., 2015). Deterding and others (2011) further expanded on that notion by defining the term as the adoption of game elements and game-design techniques for engaging people to solve problems in a non-gaming environment. E-learning is one of those nongaming contexts, and gamification is heavily utilized (Chan et al., 2016). Affordances that gamification offers is numerous. Foremost is how it helps students to be active learners. Because of a positive feedback system built into game designs, students can self-assess the feedback and use these metacognitive processes to direct themselves towards academic progression and overcome challenges through developing fortitude (Muntean, 2011). Gee (2008) also found that harnessing the ability to complete games

and win them promotes creative thinking and boosts productivity. For teachers, that cultivates a learning environment where students can react to disappointment with good faith. Considering that traditional learning makes students passive, a gamified learning environment encourages proactive learning.

Self-determination theory

The notion that gaming can positively affect learning is not without precedent. Drawing on the success of video games, empirical work that examines gamification from a self-determination perspective shows promising results (Deci & Ryan, 1985). Self-determination theorists (Deterding et al., 2011) contended that gamification can motivate learners *intrinsically*. Along this line, Raymer (2011) argued that by integrating game elements into learning activities, students are more likely to understand complex subjects (which fulfils the competence dimension) and are more willing to solve problems on their own (which fulfils the autonomy dimension). This ultimately paves the way for them to connect with peers who are also subject to the same conditions (which fulfils the relatedness dimension). When these three dimensions are met, according to this school of thoughts, habits nurtured in games endure beyond the period of gameplay. In essence, gamification can empower learners to learn.

METHODS

In this study, a mixed method approach was used (Creswell & Clark, 2017). Qualitative data from interviews and quantitative data from questionnaires and reading tests helped answer two main research questions:

1. What are the high achievers' perspectives of Oxford Achiever?
2. What can be said about the high achievers from the perspective of self-determination theory?

At the start of the study, P3 students ($N=350$) and P6 students ($N=161$) from KF, AS, and TY all took a reading test that modelled after the Hong Kong Territory-wide System Assessment. After the test, pre-study questionnaires were administered. All questionnaire items were designed to assess students' motivation (based on the self-determination theory) and level of engagement. These questionnaire items were measured on a four-point Likert Scale with 4 indicating "strongly agree" and 1 indicating "strongly disagree". Following this, students began to use OA. Three months into their usage, semi-structured interviews were arranged for top scorers (i.e. at least 10 practices completed) and their parents. A total of 8 students (3 from KF, 3 from AS, and 2 from TY) and 3 parents (all from AS) took the chance to speak about the platform, which happened between February and March 2018. For students, they were asked 22 questions, including 3 general feedback questions, 10 *competence* questions, 5 *autonomy* questions, and 4 *relatedness* questions. Parent interviews had 15 questions revolving around the themes of English learning, psychology, and general system feedback. At the end of the intervention, a second round of reading tests, questionnaires, and interviews took place to assess students' learning gains. This time, only students who interacted with the OA platform participated in the post-tests, totaling 157 P3 students and 68 P6 students. The tests were again modelled after the TSA for both grade levels. Towards the end of June, the tests were collected, graded, and recorded. In the questionnaire, all items were once again based on the self-determination theory and measured on a four-point Likert scale. The questionnaire items this time revolved around students' learning and OA system feedback. In this round of interview, 7 students (including 2 from AS and 5 from KF), 1 parent (whose child goes to AS), and 2 teachers (one from KF and the other from TY) were invited. During the interviews, the students were asked a total of 15 questions, the parents 12 and the teachers 13.

RESULTS

Data collected from the data sources were evaluated using the Statistical Package for the Social Sciences 11.

Paired Samples Test											
School	Grade			Paired Differences				t	df	Sig. (2-tailed)	
				Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
							Lower				Upper
KF	P3	Pair 1	Post - Pre Scores	.814	3.990	.430	-.041	1.669	1.892	85	.062
	P6	Pair 1	Post - Pre Scores	-4.240	6.610	1.322	-6.968	-1.512	-3.207	24	.004
AS	P3	Pair 1	Post - Pre Scores	3.864	5.064	1.080	1.618	6.109	3.578	21	.002

TY	P3	Pair 1	Post - Pre Scores	2.367	4.072	.744	.846	3.887	3.183	29	.003
----	----	--------	-------------------	-------	-------	------	------	-------	-------	----	------

Table 1. Reading Scores between the Three Schools.

Overall, reading test scores improved (in pre-study: $N=163$, $M=14.90$, $SD=4.89$; in post-study: $N=163$, $M=15.64$, $SD=5.876$). Table 1 further revealed that the average scores of post-test increased by 0.74 points compared to pre-test. This suggests that OA intervention is statistically significant at a 95% confidence level. Since our control group P6 KF's average score of posttest decreases by 4.24 points compared to pre-test, it can be concluded that without the use of OA, not only could students' English abilities become stagnant, they could have performed worse. As the Sig. value (2-tailed) of P3 students of KF is 0.062, it may not show the degree to which OA is an effective intervention. But the other two groups' results still show that OA is rather successful. AS serves a point. Its post-test scores increased by 3.864 points comparing to its pre-test's. Moreover, the majority of students at AS increased their scores by 1.618 to 6.109 points. This corresponds with a low Std. Deviation pertaining to that jump. Table 2 has a detailed breakdown for each top scorer's experience.

School	Student	Listening	Speaking	Reading	Writing	Key takeaways
AS	TD (Girl)	Favourite	Need to be improved	Improved	Improved	<ul style="list-style-type: none"> Increase interest level Become a proactive student Increase in <u>interactions with sibling</u>
	TJ (Boy)	/	/	Improved	/	<ul style="list-style-type: none"> <i>Higher Incentives</i> for using OA due to trophies and stars, etc. Enhance the sense of achievement
KF	FA (Boy)	/	Improved	Improved	Improved	<ul style="list-style-type: none"> Increase in <u>interactions with parents</u> Improvement in vocabulary <i>A higher incentive</i> for learning
	CHQ (Boy)	/	/	Improved	Disliked	<ul style="list-style-type: none"> Improvement in grammar and vocabulary <i>A higher incentive</i> for learning Increase in <u>interactions with mother</u> <u>Created opportunity to teach classmates</u>
TY	LHC (Girl)	Favourite	Improved	Improved	Improved	<ul style="list-style-type: none"> Increase in confidence in speaking, Improvement in vocabulary
	JCH (Boy)	Favourite	Improved	Improved	Improved	<ul style="list-style-type: none"> Eager to speak and answer questions Increase in <u>frequency of discussion with peers</u>

Table 2. A summary of top scorers' interviews.

COMPETENCE & AUTONOMY

Listening

TD from AS, as well as LHC and JCH from TY, considered listening as their favourite part of the English lessons. All of them were keen on finishing their listening problem sets on OA, as a result. Given that listening is their strength, TD and JCH indicated their interest in the listening component. As for LHC, her fondness in listening to English stories prompted her to actively finish the listening questions on OA. Her A-grade on listening tests in school was a testament to her improvement in listening comprehension capabilities. Based on self-determination theory, these students demonstrated that the listening practices enabled them to feel competent. This sense of competence further propelled them to complete the questions on the platform as immediate goals.

Speaking

LHC has become more confident to speak English at home and in school since she started OA. In her testimony, she told her interviewers that "speaking has become easier [than she used to]," suggesting that she had overcome her fear to converse in English far back in time. JCH, who was like LHC, also improved his conversational English. His perceived improvement

stemmed from the fact that he stepped up his game in English classes, volunteering to answer questions and to help his classmates understand English concepts. A sense of autonomy is observable. Learning through their experiences on OA had helped them to proactively solve problems that they never thought of before, e.g. in situations where most of her classmates “don’t understand the English [questions],” LHC would step in, helping her classmates to overcome challenges that stumped her class mates. In doing so, she “became more active [in school], and more confident in the learning itself”.

Reading

All six interviewees reflected that their reading skills had improved by leaps and bounds. TD and TJ from AS were now able to read between lines for clues, a skill that they believed had allowed them to retrieve the right answer for each question more effectively than before. CHQ from KF also thought that he took more lessons out of his reading, as he discovered new ways of interpreting texts and was able to understand a prompt more in-depth. An intriguing point came from FA of KF, who reported that he got higher grades on his reading tests at school, citing OA as his source for multiple practices outside of class. His experience affirmed the notion that gamified lessons can serve as an effective supplement to traditional classroom lessons. This paves for the way of FA’s sense of competence to shine through and reinforce his takeaway from English lessons.

Writing

Four out of six students saw their English writing skills improved. After using OA, TD was capable of churning out essays with ease, while JCH could express himself better when given a writing prompt. Their improvement stemmed in large part to the dense reading comprehension texts they needed to plough through on OA. With a consistently high input of English reading, comprehension, analysis and application, they could write at a consistently decent level. However, not every other student found the platform helpful. CHQ, for one, was most skeptical about the fact that OA could help with writing. LHC agreed with him, suggesting that there is a huge room for improvement for the writing section on OA. “With more keywords [i.e. hints] on the margin,” she said, “I would feel less intimidated to write in English.” Her anecdote actually represents the woes of many primary school students in Hong Kong, in that writing is an intimidating part of English learning, given their small vocabulary base and a lack of practice outside of class. If this sense of fear for words can be mitigated, a sense of achievement can be cultivated, and in self-determination theorists’ perspective, they will turn out to be more competent writers.

Grammar and vocabulary

In the area of grammar and vocabulary, TD found OA helpful in that she could identify tenses more accurately than before. Commenting on how real-life examples on OA had helped her understand English concepts like word tenses, she told interviewers that she had a fuller understanding of how word tenses operate. Other students (e.g. FA, CHQ, and LHC) also found their grammar and vocabulary had improved. CHQ, in particular, could use more words in sentences now, while LHC’s increased exposure to complex sentence structure and word formation on OA allowed her to make an educated guess at new words. A sense of autonomy is thus observable in all these instances.

RELATEDNESS

Four of the six students mentioned that their interactions with family members or classmates took place more often than before. This coincidentally chimed with the finding by Chen and others (2018), whom discovered that Reading Battle, another Hong Kong’s popular e-learning tool, enabled students to “[grow] closer to their parents” (p.7). In this study, similar patterns emerged. TD was now closer to her brother because of OA, while FA and CHQ had more chances to speak with their own parents when they encountered problems on OA. Inside the classroom, JCH discussed with his friends more about OA. These interactions between players and their intimate circle helped to stimulate their thinking and compelled them to use the platform even more.

CONCLUSION

In sum, OA seems to be an effective e-learning platform. Findings suggested that using the platform fulfilled the three basic psychological needs in the students. Considering that the platform is developing a niche market in Hong Kong, a place that undergoes rapidly-evolving tech infrastructure, this study provides an insight for future e-learning platform design. In experimental settings, studies similar to this can be enriched if the students are studied over a longitudinal scale, and if in-game elements such as leaderboard or badges are individually scrutinized for their impacts on learning.

REFERENCES

- Chan, M., Chu, S., Mok, S., & Tam, F. (2016). Fostering Interest in Reading and Strengthening RC Ability of P Students Using a Children’s Literature E-quiz Bank on the Cloud. Paper presented at the 25th IETC, Hong Kong.
- Creswell, J. & Clark, V. (2017). *Designing and conducting mixed methods research (3rd ed.)*. Thousand Oaks, CA: Sage.
- Deci, E., & Ryan, R. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Deterding, S., Khaled, R., Nacke, L., & Dixon, D. (2011) Gamification: Toward a Definition. CHI 2011, Gamification Workshop Proceedings, Vancouver, BC, Canada.

- Dicheva, D., Dichev, C., Agre, G., & Angelova, G. (2015). Gamification in education: a systematic mapping study. *Journal of Educational Technology & Society*, 18(3), 75–88.
- Fuchs, C. (2016). “Are you able to access this website at all?” – Team negotiations and macro-level challenges in telecollaboration. *CALL Journal* 29(4), 1–17.
- Gee, J. (2008). Learning and games. In Katie Salen (Ed.) *The ecology of games: Connecting youth, games, and learning*. Cambridge, MA: The MIT Press.
- Kong, S., Chan, T., Huang, R., & Cheah, H. (2014). A review of e-Learning policy in school education in Singapore, Hong Kong, Taiwan, and Beijing: implications to future policy planning. *Journal of Computers in Education*, 1(2-3), 187–212.
- Muntean, C. (2011). Raising engagement in e-learning through gamification. http://xueshu.baidu.com/s?wd=ehttp://xueshu.baidu.com/s?wd=e-learning+gamification&rsv_bp=0&tn=SE_baiduxueshu_c1gjeupa&rsv_spt=3&ie=utf-8&f=8&rsv_sug2=0&sc_f_para=sc_tasktype%3D%7BfirstSimpleSearch%7Dlearning+gamification&rsv_bp=0&tn=SE_baiduxueshu_c1gjeupa&rsv_spt=3&ie=utf-8&f=8&rsv_sug2=0&sc_f_para=sc_tasktype%3D%7BfirstSimpleSearch%7D
- “Oxford Achiever”. (n.d.) OUP. <https://www.oupchina.com.hk/en/elearning/ebook-n-assessment#oxford-achiever>
- Raymer, R. (2011). Gamification: using game mechanics to enhance elearning. *Elearn*. <https://elearnmag.acm.org/featured.cfm?aid=2031772>
- Shearer, R., Gregg, A., Joo, K., & Graham, K. (2014). Transactional Distance in MOOCs: A critical analysis of dialogue, structure, and learner autonomy. Paper presented at the 55th AER Conference, Middletown, PA: Penn State Harrisburg.
- The Fourth Strategy on IT in Education: Consultation Document. (2014). EDB of HKSAR. https://www.edb.gov.hk/attachment/en/edu-system/primary-secondary/applicable-to-primary-secondary/it-in-edu/it-in-https://www.edb.gov.hk/attachment/en/edu-system/primary-secondary/applicable-to-primary-secondary/it-in-edu/it-in-edu/Policies/4th_consultation_eng.pdfedu/Policies/4th_consultation_eng.pdf

COPYRIGHTS

Authors retain all copyrights.