Facilitating student engagement through the flipped learning approach in K-12: Provisional results of a South Australian case study

Melissa Bond

1

Facilitating student engagement through educational technology

- Students + technology does not = engagement
  - Careful planning and sound pedagogy are needed[1]
- Research has found that using technology can predict increased student engagement[2]
  - Improved self-regulation and self-efficacy[3]
  - Increased participation and involvement[4]
  - Increased involvement in the wider school/university community[5]
- By identifying factors that positively contribute to student engagement when using technology, educators are better able to design lessons and courses that will engage students and lead to enhanced outcomes.

1. Higgins, S., Xiao, Z., & Katsipataki, M. (2012); Popenici (2013)
2. Rashid & Asghar (2016); Chen, Lambert & Guidry (2010)
3. Alioon & Delialioglu (2017); Bouta, Retalis & Paraskeva (2012)
4. Salaber (2014); Northey, et al. (2015); Alioon & Delialioglu (2017)
5. Junco (2012); Alioon & Delialioglu (2017)

2

PhD Research Questions

1. What are the central research topics and issues related to educational technologies in general and, more specifically, in the context of K-12 and Australia?

2. Under which conditions does educational technology support student engagement in the K-12 classroom?

3. How can the flipped classroom model support student engagement in the K-12 classroom?

3

Methodology

- PhD by publication using a social constructivist paradigm[1]
  - Macro overview, narrowing to micro examples

1. Content Analysis – *Australasian Journal of Educational Technology*
2. Theoretical Article
   - *Facilitating student engagement through educational technology: Towards a conceptual framework*
3. Systematic Literature Review
   - *Facilitating student engagement through the flipped classroom approach in K-12: A Systematic Review*
   - *Facilitating student engagement through educational technology in K-12: A Systematic Review*
4. Case Study
   - *Facilitating student engagement through the flipped classroom approach in K-12: A case study of two South Australian Professional Learning Networks*

4

1. Terre Blanche, Kelly, & Durrheim (2006)

Bond (2018) - Facilitating student engagement through the flipped learning approach in K-12: Provisional results of a South Australian case study

Case Study – Flipped Learning in K-12

"A promising method to effectively engage students in the learning process and to develop their digital competencies" [1]

What is flipped learning?

- Student-centred approach, theoretical foundations in constructivism and collaborative learning theory.[2]
- Students complete computer-based, individual instruction at home and the group space is used for interactive group learning activities in the classroom.[2]
- Does not always use videos.[3]

Flipped learning has been shown to improve:

- Higher order thinking, collaboration and teamwork skills[4]
- Subject-specific knowledge and skills[4]
- Transparency for parents[5]

1. Kostaris, et al. (2017, p.261)
2. Bishop & Verleger (2013)
3. Bergmann & Sams (2012); Gough, DeJong, Grundmeyer & Baron (2017)
4. Aidinopolou & Sampson (2017); Lo & Hew (2017); Kim, Park, Jang & Nam (2017)
5. Gough, DeJong, Grundmeyer & Baron (2017)

5

Case Study – Flipped Learning in K-12

Helps answer research questions two and three

Objectives:

1. to uncover under which conditions educational technology supports student engagement in the K-12 classroom applying the flipped classroom approach;
2. to explore student, teacher and parent perceptions of and attitudes towards the flipped classroom model in the K-12 classroom;
3. to explore whether student access to technology at home impacts on the flipped classroom approach; and
4. to explore how and to what extent K-12 teachers are accessing professional development and contemporary research on using educational technology in the classroom.

6

Bond (2018) - Facilitating student engagement through the flipped learning approach in K-12: Provisional results of a South Australian case study

Case Study – Flipped Learning in K-12

Methodology:

- Qualitative case study across one year
  - Allows an examination of phenomena from different angles "in its natural setting"[1]
  - Triangulate research findings[2]
  - Multiple opportunities for data collection to gain insight into flipped learning approach over time[3]
  - effective for conducting research within classrooms, as each one is complex and contextually different[4]

Cohort:

- Students, teachers, school leaders and parents from schools in two Professional Network Learning Groups in South Australia

1. Willis (2008, p.212)
2. Yin (2014)
3. Henrie, Halverson & Graham (2015); Ma, Han, Yang & Cheng (2015)
4. Tojo & Takagi (2017)

7

Case Study – Flipped Learning in K-12

Stage 1 Data Collection (December 2017):

- A Likert scale and open-ended question questionnaire was administered to teachers *(n* = 9) and principals *(n* = 1), including questions used in previously validated instruments, such as the:
  - Information and Communication Technology Scale[1]
  - Online Learning Readiness Scale[2]
  - the perception questionnaire used by Gough, et al. (2017)
- Semi-structured interviews with teachers (*n* = 9) and principals *(n* = 2)

Stage 2 Data Collection (2018)

- A Likert scale and open-ended question questionnaire for teachers
- A Likert scale and open-ended question questionnaire for students:
  - eLearning readiness[3]
  - Flipped learning readiness and satisfaction[4]
  - engagement[5]

1. Huang & Hong (2016)
2. Hung, Chou, Chen & Own (2010)
3. e.g. Yurdugül & Demir, in press; Huang & Hong, 2016
4. e.g. Hao, 2016a; Hao, 2016b; Kostaris, et al., 2017
5. e.g. Appleton, Christenson, Kim, & Reschly, 2006; Australasian Survey of Student Engagement

8

Bond (2018) - Facilitating student engagement through the flipped learning approach in K-12: Provisional results of a South Australian case study

Case Study – Flipped Learning in K-12

Stage 3 Data Collection (May 2018 – collection ongoing at present):

- Follow up semi-structured interviews with teachers (*n* = 7)
- A Likert scale and open-ended question questionnaire for parents (*n* = 13)
- Semi-structured interviews with parents
- Focus groups with students (*n* = 7)
- Classroom observations
  - Year 7 Maths and Creative Arts
  - Year 9 Maths and Music
  - Year 11 Music
  - Year 12 Chemistry, Physics and PE
- Network Learning Group meeting observations (*n* = 2)

Stage 4 Data Collection (November or December 2018)

- Questionnaire for students, parents and teachers involved
- Final semi-structured interviews with teachers

9

And now the good stuff…

Results so far!

10

Teacher perceptions - Disadvantages

- "Use of technology is a double-edged sword. It's riddled with social justice inequity and access at home for many students, whether it's time, space, the ability to afford it, the connection. The ability to find somewhere to work and learn, is often tricky." (Teacher 12)
- "I think we have to take a coherent approach as a school, because if some teachers are doing it and other teachers are not, or I'm still trying to figure out whether if all teachers are doing it, whether it's too much flipped?" (Teacher 14)
- "Yeah, I guess there were some occasions where the students just didn't apply themselves in the best manner and they would not watch the video. The consequence of that is that the student would have to watch it in class, they'd catch up for it." (Teacher 25)

11

Teacher perceptions - Advantages

- „This is the way kids learn" (Teacher 2)
- „It's kind of like a 24/7 accessible teacher, without actually being there." (Teacher 4)
- "They felt like the quality of feedback they got was better because with written feedback I guess there's another level of interpretation. You're reading it and you're trying to work out what the teacher means, but when I was speaking through it, they had a better idea of what I meant and understood the feedback more clearly." (Flipped feedback - Teacher 11)
- "So, if they've accessed the information they need to before the lesson, you can spend your time helping them get that done. I think that's majorly useful, rather than setting up at least half the lesson teaching them how to do something, getting them to do it and then trying to help out in the last little bit individually. So more time in the classroom, I think." (Teacher 1)

12

Bond (2018) - Facilitating student engagement through the flipped learning approach in K-12: Provisional results of a South Australian case study

Parent Perceptions

n = 13

- 61.54% with children in Year 7
- 38.46% in Year 12

Useful Tools and Services for School Use		
Rank 1	Search engines	4.85
Rank 2	Email (e.g. Hotmail)	4.69
Rank 3	School email	4.15
Rank 4	Videos (e.g. on YouTube)	4.08
Rank 5	Music (e.g. iTunes)	3.69
Rank 16	Blogs	2.33
Rank 17	Microblogging (e.g. Twitter)	1.54

13

Parent Perceptions

- Important for their children to use online tools (4.67)
- Children not necessarily more motivated to learn as a result (3.58)

Perceptions of flipped learning		
Rank 1	Flipped learning helps through rewatching content	4.00
Rank 2	Helps when students are absent	3.92
Rank 3	Discussions with teachers centre more on learning	3.33
Rank 4	Students have a greater sense of responsibility	3.31
Rank 5	Assignments and academic performance have improved	3.31
Rank 6	Students more engaged	3.23

14

Bond (2018) - Facilitating student engagement through the flipped learning approach in K-12: Provisional results of a South Australian case study

Parent Perceptions

- Unsure as to whether it helps their children learn better (3.00)
- Don‘t think their children prefer flipped over traditional (2.92)
- Most have not watched any of their child‘s flipped content (2.46)

15

Student Perceptions

n = 21

- 61.90% in Year 7
- 38.10% in Year 12

Useful Tools and Services for School Use		
Rank 1	School email	4.67
Rank 2	Search engines	4.43
Rank 3	Videos (e.g. on YouTube)	3.76
Rank 4	Email (e.g. Hotmail)	3.45
Rank 5	Presentation sharing	3.00
Rank 15	Blogs	1.14
Rank 17	Microblogging (e.g. Twitter)	1.00

16

Bond (2018) - Facilitating student engagement through the flipped learning approach in K-12: Provisional results of a South Australian case study

Student Perceptions

- Confident doing online research (4.57) and using MS Office programs (4.52)
- High expectations for learning (4.38) and motivated to learn (4.24)

Perceptions of flipped learning		
Rank 1	Flipped learning helps through rewatching content	4.20
Rank 2	Helps when students are absent	3.75
Rank 3	Allows for more active learning	3.70
Rank 4	Gives them a greater sense of responsibility	3.70
Rank 5	More time for learning content	3.65
Rank 6	Increased interaction with teachers	3.40
Rank 7	Feel more engaged	3.35

Student Perceptions

- Unsure as to whether it helps build better collaborative skills with other students (2.95)
- Parents are not more aware of learning (2.75)
- Most parents have not watched any of the flipped content (2.40)

18

Bond (2018) - Facilitating student engagement through the flipped learning approach in K-12: Provisional results of a South Australian case study

Student Perceptions – Focus Groups

Disadvantages
Internet can be a serious issue
Waiting until the next lesson for clarification
Content in videos needs to be clear
Videos by other teachers can be confusing
If you're not good at self-directed learning
No paper copy of flipped drafting
Not linking the video to class content

19

Student Perceptions – Focus Groups

Advantages	
Increases one-on-one time with teacher	Videos fits their lifestyle/style of learning
Improved student-teacher relationships	"More valuable communication"
Subject content is more approachable	More motivated to work in class
Students feel more able to ask questions	Time at school is more productive
Being able to rewatch the videos	More focused on work
Homework time is reduced	Less likely to procrastinate
Can catch up if absent (traineeships etc)	Can see teacher thought processes
Reinforcement of content	Great for teacher self-reflection
More time for learning	Prepares students for university
Gives students more confidence	More accountable for learning
Not bothering the teacher as much	Easier to follow flipped drafting
More comfortable in approaching teacher	Subjects are more enjoyable

20

Bond (2018) - Facilitating student engagement through the flipped learning approach in K-12: Provisional results of a South Australian case study

Advice from students on how to flip

Course Structure

- Keep it structured and easy to follow, in order.
- Don‘t create videos too ahead of time.
  - ➢ Creating during a topic can keep content fresh in your mind.
- Check that everything works before setting it for homework.
- Don‘t release videos ahead of time.
- A mix of both flipped and traditional works well.
- Have quiz questions (even if 2-4 questions) after the video.

Class time

- Discuss the videos that were set for homework to reinforce concepts.
- Stay connected to students and check in with them.

Flipped Drafting

- Go through and record yourself talking to student drafts, recording your thoughts.
- Give a copy (either paper or email) of the revised draft

21

Advice from students on how to flip

Videos

- Videos you create are far more valuable and understandable.
- Do not worry about the sound of your voice!
- Keep them “short, sharp and shiny“ – up to 6 minutes
- One topic per video
- Break bigger topics up into short videos
- Use dot points instead of lots of content.
- Use 30 seconds to link to previous video
- Record using a lightboard if possible, or at least with you in the video.
- Pretend the students are in the room with you and present as normal.
- Don‘t overthink it – be natural.
- If you make a mistake, correct yourself and keep going.
  - ➢ ”It doesn‘t have to be a perfect video“
- Store content in multiple places – USB, online, school server

22

Bond (2018) - Facilitating student engagement through the flipped learning approach in K-12: Provisional results of a South Australian case study

CARL VON OSSIETZKY universität OLDENBURG

COER Center for Open Education Research

Advice from teachers on how to flip

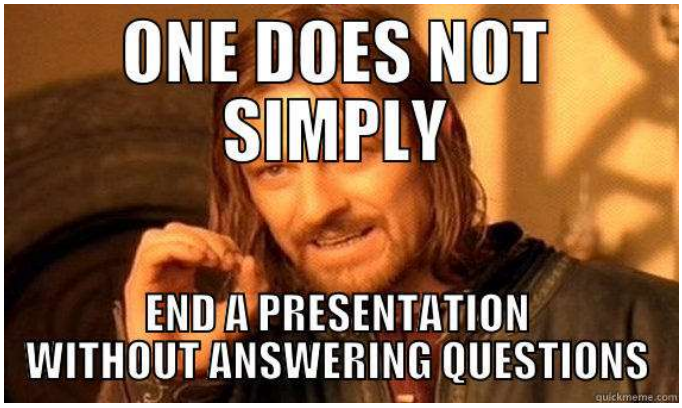
- Go 100%, start simple and be brave.
- Do the online training with the Flipped Learning Global Network.
- Be organised.
- Make it personal – do the videos yourself.
  - Be in the videos in some way.
- Use a lightboard or some kind of drawing.
- Be aware of timing.
- Share ideas with other teachers.
- Explain to students why you‘re using the tech.

23

CARL VON OSSIETZKY universität OLDENBURG

COER Center for Open Education Research

Questions?



24

Bond (2018) - Facilitating student engagement through the flipped learning approach in K-12: Provisional results of a South Australian case study

Melissa Bond

melissa.bond@uni.oldenburg.de

https://www.uni-oldenburg.de/coer/

@misc_nerd

25

References

Aidinopoulou, V., & Sampson, D. (2017). An Action Research Study from Implementing the Flipped Classroom Model in Primary School History Teaching and Learning. *Educational Technology & Society, 20*(1), 237–247.

Alioon, Y., & Delialioglu, O. (2017). The effect of authentic m-learning activities on student engagement and motivation. British Journal of Educational Technology, 1-14.

Appleton, J., Christenson, S., & Furlong, M. (2008). Student Engagement with School: Critical conceptual and methodological issues of the construct. *Psychology in the Schools, 45*(5), 369-386.

Bergmann, J., & Sams, A. (2012). *Flip your classroom: Reach every student in every class every day.* Eugene, OR: International Society for Technology in Education.

Bishop, J., & Verleger, M. (2013). The Flipped Classroom: A Survey of the Research. *Proceedings of the 120th ASEE Annual Conference & Exposition*.

Bouta, H., Retalis, S., & Paraskeva, F. (2012). Utilising a collaborative macro-script to enhance student engagement: A mixed method study in a 3D virtual environment. Computers & Education, 58, 501-517.

Chen, P.-S., Lambert, A., & Guidry, K. (2010). Engaging online learners: The impact of Web-based learning technology on college student engagement. *Computers & Education, 54*(4), 1222-1232.

Gough, E., DeJong, D., Grundmeyer, T., & Baron, M. (2017). K-12 Teacher Perceptions Regarding the Flipped Classroom Model for Teaching and Learning. *Journal of Educational Technology Systems, 45*(3), 390-423.

Hao, Y. (2016a). Exploring undergraduates' perspectives and flipped learning readiness in their flipped classrooms. *Computers in Human Behaviour, 59*, 82-92.

Hao, Y. (2016b). Middle school students' flipped learning readiness in foreign language classrooms: Exploring its relationship with personal characteristics and individual circumstances. *Computers in Human Behaviour, 59*, 295-303.

Henrie, C., Halverson, L., & Graham, C. (2015). Measuring student engagement in technology-mediated learning: A review. *Computers & Education, 90*, 36-53.

26

Bond (2018) - Facilitating student engagement through the flipped learning approach in K-12: Provisional results of a South Australian case study

References

Higgins, S., Xiao, Z., & Katsipataki, M. (2012). *The Impact of Digital Technology on Learning: A Summary for the Education Endowment Foundation.* Durham University.

Howard, S., Ma, J., & Yang, J. (2016). Student rules: Exploring patterns of students' computer efficacy and engagement with digital technologies in learning. *Computers & Education, 101*, 29-42.

Huang, Y.-N., & Hong, Z.-R. (2016). The effects of a flipped classroom intervention on students' information and communication technology and English reading comprehension. *Educational Technology Research & Development, 64*, 175-193.

Hung, M.-L., Chou, C., Chen, C.-H., & Own, Z.-Y. (2010). Learner readiness for online learning: Scale development and student perceptions. *Computers & Education, 55*, 1080-1090.

Junco, R. (2012). The relationship between frequency of Facebook use, participation in Facebook activities, and student engagement. *Computers & Education, 58*, 162-171

Kim, J., Park, H., Jang, M., & Nam, H. (2017). Exploring Flipped Classroom Effects on Second Language Learners' Cognitive Processing. *Foreign Language Annals, 50*(2), 260-284. doi:10.1111/flan.12260

Kostaris, C., Sergis, S., Sampson, D., Giannakos, M., & Pelliccione, L. (2017). Investigating the Potential of the Flipped Classroom Model in K-12 ICT Teaching and Learning: An Action Research Study. *Educational Technology & Society, 20*(1), 261-273.

Lo, C., & Hew, K. (2017). A critical review of flipped classroom challenges in K-12 education: possible solutions and recommendations for future research. *Research and Practice in Technology Enhanced Learning, 12*(4), 1-22.

Ma, J., Han, X., Yang, J., & Cheng, J. (2015). Examining the necessary condition for engagement in an online learning environment based on learning analytics approach: The role of the instructor. *Internet and Higher Education, 24*, 26-34.

Northey, G., Bucic, T., Chylinkski, M., & Govind, R. (2015). Increasing Student Engagement Using *Asynchronous Learning. Journal of Marketing Education, 37*(3), 171-180.

Popenici, S. (2013). Towards a New Vision for University Governance, Pedagogies and Student Engagement. In E. Dunne, & D. Owen (Eds.), *The Student Engagement Handbook: Practice in Higher Education* (pp. 23- 42). Bingley: Emerald Publishing Group Ltd.

27

References

Rashid, T., & Asghar, H. (2016). Technology use, self-directed learning, student engagement and academic performance: Examining the interrelations. *Computers in Human Behaviour*, 63, 604-612.

Salaber, J. (2014). Facilitating student engagement and collaboration in a large postgraduate course using wiki-based activities. *The International Journal of Management Education, 12*, 115-126.

Terre Blanche, M., Kelly, K., & Durrheim, K. (2006). Why qualitative research? In M. Terre Blanche, K. Durrheim, & D. Painter (Eds.), *Research in Practice: Applied Methods for Social Sciences* (2nd ed., pp. 271-284). South Africa: Juta and Company Ltd.

Tojo, H., & Takagi, A. (2017). Trends in Qualitative Research in Three Major Language Teaching and Learning Journals, 2006–2015. *International Journal of English Language Teaching, 4*(1), 37-47.

Willis, J. (2008). *Qualitative Research Methods in Education and Educational Technology.* Charlotte, NC: Information Age Publishing.

Yin, R. (2014). *Case Study Research: Design and Methods* (5th ed.). Thousand Oaks, CA: SAGE Publications.

Yurdugül, H., & Demir, Ö. (in press). An investigation of pre-service teachers' readiness for e-learning at undergraduate level teacher training programs: The case of Hacettepe University. *Hacettepe University Journal of Education*. doi:http://dx.doi.org/10.16986/HUJE.2016022763

28

Bond (2018) - Facilitating student engagement through the flipped learning approach in K-12: Provisional results of a South Australian case study