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**Inquiry 2: Isobel Willard**

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**Should IB be flipped?**

**An inquiry into a 21st century teaching strategy**

**Introduction**

My inquiry topic was raised from my interest in what 21-century classrooms could look like, and more importantly what they do look like it in many classrooms around the country and globe. In particular, I am interested in examining how the structure of the classroom and the use of class time are changing. To narrow my focus, I want to investigate the ideas and practices of flipped learning (learning course content at home mostly though an online format while participating in guided practice during class time) and whether or not this type of educational strategy would best work for the enriched IB program. I choose to look particularly at the IB to examine this topic for a few reasons. For one, the IB is in many ways a leader in implementing what are deemed best teaching practices, which focus on concept and project-based learning. Furthermore, the IB Diploma Programme mainly attracts highly motivated students who are prepared to dedicate time out of class to their education. While flipped learning would most likely present higher volumes of homework to an average student, IB students already spend a great deal of time doing homework; therefore flipped learning would simply replace the type of homework already being done. Lastly, I am interested in focusing on the IB for personal reasons, which concern my own desire to teach in the IB educational field.

My curiosity in flipped learning is deepened by a personal experience I had in the last semester of my undergraduate degree, which was taken online during the summer. During these courses I would work at home for a couple of hours on online modules and would meet up with people I met through the class’s online community once a week where we discussed ideas and practiced new skills. In this case, we created our own flipped classroom. These were some of the best grades I received in my undergraduate. I could not figure out whether my grades were higher because this style of learning worked best for me, or whether it is a superior way to learn overall. My attention span is not very long and I have to take a lot of breaks when doing homework, because I was allowed to do this I believe my learning was enhanced. When I missed something I could re-watch it or review the slides- then take questions to my peers and facilitators. Flipped learning worked for me, so I wonder, should IB be flipped?

This question investigates not only how technology is used in classrooms but how technology can change how we spend class time, and in many ways the structure of current schooling. It was my hope to uncover the best ways to create classrooms that honor the intelligences and uniqueness’s of student’s abilities along with examining the significance of technology in modernizing education. My inquiry is a situated in this larger story.

**Methods of Research**

While surveys and interviews with teachers and students would be of great value to this line of research, in interest of time, getting an ethical approval by UBC’s Behavioral Research Ethics Board was not possible. Therefore my research will consist of academic journals, newspapers, blogs, IB websites and course readings. While my research is grounded in peer-reviewed academic journals, I found the analysis of teacher blogs provided me with the most enriching and practical information on the benefits and issues surrounding flipped classrooms. That being said, much of the research on flipped learning even within academic educational journals heavily relies on anecdotal studies rather than empirical evidence. This suggests that there is a continued need for data-driven studies on this topic.

**What is IB?**

IB or International Baccalaureate is a non-profit educational foundation that attempts to develop “intellectual, personal, emotional and social skills needed to live, learn and work in a rapidly globalizing world” (IBO website, <http://www.ibo.org>)**.** The IB focuses on developing an education that inspires inquiry, academic rigor, internationally-mindedness and most importantly lifelong learners. This is achieved by placing a strong emphasis on accepting diversity, maintaining a community aim and integrating the changing skills students need in the 21- century including literacy in technology*.*

The IB core is comprised of a class called ‘theory of knowledge’, a service component called CAS (Creativity, Action, Service), and an extended essay. These all support the IB philosophy and mission statement and help IB learners expand their knowledge beyond base curriculum subject matter. Theory of knowledge is a key component to building open-mindedness, promoting the awareness, enabling deeper analysis of subjects and encouraging higher-level thinking. Secondly, CAS: requires students to actively participate in the arts to expand their understanding and appreciation of something new, informs students of the importance of caring for their physical state as a way of respecting themselves and requires students to serve their community in an effort to expand their learning beyond the classroom. Lastly, the extended essay provides students with an opportunity to build a lifelong skill. The work of conducting research, using analytical thinking, working with an advisor and writing a formal report prepares students for further education and professional pursuits. While these aspects of IB are not directly related to my line of inquiry they are an integral part of what the IB is. For the purposes of my inquiry I am not suggesting that these elements of the IB are flipped, but focus on the classroom-based courses like math, history and science.

**What is flipped learning?**

Flipped learning is a teaching strategy that essentially flips the tradition classroom, where the delivery of the concepts and content is done at home through online means and class time is spent practicing skills and inquiring about concepts. Students in flipped classroom predominately learn by watching video lessons, online presentations or podcasts made and/ or distributed by their teacher. Since students watch lessons at home, teachers have more time in class to interact and guide students in the practice of their new skills and knowledge. The idea of a flipped classroom is to change the role of the teacher from a lecturer to a guide or facilitator of learning. The hope is that the classroom becomes more student- centered and driven by activities that deepen the learning process. Lage, Platt, and Tregalia, claim to be the first to have implemented the flipped (inverted) approach in a paper they published in 2000, they reported, “that students in their economics course felt that they learned more in the flipped environment than in a lecture course. They enjoyed the hands-on approach as well as the group work and interaction with peers and felt more comfortable asking questions in the less formal flipped classroom” (Love et al. 2014, 319). However, since then there have been many teachers and academics adopting the flipped teaching strategy with verifying levels of success.

**Benefits to flipped learning**

Flipping your classroom is a lot of work and very time consuming, so why would a teacher decided to do it? There are many case studies that provide evidence that flipping your classroom has positive experiences for students and career changing impacts for teachers. For one, teachers move away from lecturing at students to facilitating class discussions, group projects and inquiry based learning. With the burden of delivering content in the short time frame of a class lightened there is more time for active, hands on learning in which the teacher is available to help students collectively and individually. This is particularly impactful for IB teachers as IB curriculum is content heavy. Flipped classroom teachers are fortunate in that they have more time to spend addressing the individual needs of students. Struggling students can pause and re-watch videos if they need to and sick students don’t fall behind in content knowledge from failing to attend class. Ultimately it makes students accept responsibility for their learning. In one successful flipped study “the failure rate dropped by 33% in English language arts, 31% in math, 22% in science, and 19% in social studies. Standardized test scores went up, as did attendance and disciplinary problems declined 66%.” (LaFee, Scott. 2013, 17). I imagine that flipped classroom are also more welcoming for students with an alternative first languages to the language of instruction because they can work through the content using translation devices, subtitles and by pausing videos to look up vocabulary.

Flipped learning additionally benefits many students and teachers because the classroom becomes a more enjoyable place to be. A study of a flipped classroom showed that student reported that “‘this format is so much more fun . . . you get to get to know your classmates much better. I feel like I learned better too’” (Love et al. 2014, 322). Springen (2013) discovered that one AP (advanced placement) government teacher found the best part of teaching his class was holding class discussions, “the flipped classroom helped him get through the material with time to spare for conversation”. Flipping your classroom allows for a more flexible environment which means that IB students can engage in collaboration with peers, inquiry and project-based learning. Moreover, research shows that this type of learning environment is more conductive to retaining and using course material as discussion and application of knowledge helps students remember more than listening and seeing (January 3 Lecture, 310B, Shawna Waber, UBC). For IB Diploma students, who write exams at the end of two years of study, retaining important concepts is critical and challenging. The flipped classroom may assist with this problem.

Furthermore, the Khan Academy, which gives free resources for teachers who use flipped learning in their classrooms, states that flipped classes provides a better learning experience for students because students are basically armed with tutors that allow for individualized teaching rather than a “one lecture fits all” lecture. Students with learning disabilities or students who simply need to re-listen to what the teacher said can do so without feeling embarrassed or without slowing down the learning of others. Klan also emphasizes the meaningful interactions students’ get from more collaborative class time and peer-to-peer interactions (Salman Khan: Let's use video to reinvent education, 2011) Khan believes that a flipped education is ultimately more personalized to the student.

Lastly, students become more literate in technology. Students can connect over time and space. Learning may in fact be revolutionized by flipped learning (and the integration of technology) in that teachers and students interactions are driven by the influences of social media and their online communities. Flipped learning is essentially a pedagogical and collaborative communication system that encourages virtual spaces that are “accessible through mobile, personal, portable networked devices… this will help ensure that the emergent revolution is one, which has a serious, sustainable future, firmly grounded in popular, contemporary, transient and mutable technologies” (Wallace, Albin 2014, 294). Some researchers studying technology in relation to the classroom are starting to question whether there is a real duality between students ‘real’ lives and the online spaces they occupy, as students now seem to seamlessly integrate the two. Epistemologies are also changing with understanding achieved through the flipped classroom “challenging preconceptions about the roles of the teacher and the student and how these relationships become more complex and complementary in online spaces” (Wallace, Albin 2014, 295). Lastly, thanks to online classroom content students can leave their high school, IB or university level education with a collection of informative videos that they can easily carry with them though life, unlike the weight and bulk of textbooks and note pads.

**Negatives to flipped learning**

While the argument for flipped learning is strong, there are still many skeptics and with good reason. There is a lot of challenges that still exit with flipped learning and many questions left to be debated, for example ‘is flipped learning really revolutionary’? Lefee (2013) suggest that the only reason people would be against flipped learning is because they lack familiarity with it: ‘they need more information about how it works, the issues that come up like how to evaluate flipped-learning teachers, the problems of rolling it out" (16). However as I researched the ‘con’s’ side to this argument the skeptics have a few more negatives than Lefee let on.

Firstly, where is a teacher (dedicated or not) going to find the time to convert all of their existing lectures into video format? In order for flipped learning to work there would need to be time carved out of the existing workday to take on this massive task. Following this, professional development would be essential to shifting teaching practices. Teaching educators to create high quality flipped lessons would be extensive and expensive, especially in the public system, which is already underfunded in many areas. Teachers would not only need to attend educational workshops on this teaching strategy they need to accept changing their classrooms, giving up some control, and changing expectations of their work environment (Thiele, Hank 2013, 44).

Secondly, this teaching strategy could help widen the gap between schools with higher economic means from the one who do not. There is no question that some schools would have a better ability to implement flipped learning than others. Springen (2013) suggest that not only could some schools not afford to implement flipped learning "there are also places like Iowa, Montana, or Appalachia, where it would be very difficult to get a free wireless signal to everyone... Even preloading flash drives with videos assumes kids own a device at home to plug the flash drive into” (1). It is echoed in a variety of voices that argue against flipped learning, this approach is not practical or equitable in places where significant numbers of students (or schools) have insufficient technological resources.

Thirdly, flipped learning means a lot more screen time for students and more screen time means more sitting for youth. The American Academy of Pediatrics recommends “kids limit "screen time" to two hours a day because too much exposure has been linked to obesity, irregular sleep, behavioral problems, violence, and less time for play” (Springen, K. 2013). However, this has stirred up another debate with opponent arguing that not all screen time is created equal, it depends on how the screens are used, “‘you could be writing, creating, changing the world from your laptop,’ says Nielsen. ‘In countries like Egypt, we've used screens to start a revolution’” (Springen, K. 2013). While Neilsen is correct, in my opinion having youth sit in front of a computer screen for longer than they already do is moving in the wrong direction.

Fourthly, and perhaps the strongest argument for me is that listening to a lecture is nothing new, even if it is on a video. In essence it is still watching someone else do something. Shelly Wright is a teacher blogger in Saskatchewan, Canada and she implemented flipped learning into her classroom and then stopped a couple years after. Wright challenged some of the assumptions that surround flipped learning and argues that education is not actually being converted by this teaching strategy, “it simply didn’t produce the transformative learning experience I knew I wanted for my students” (Wright, Shelly, 2012). While investigating her blog I found out that Wright seemed to actually move pass flipped learning, as if it was a stepping-stone to something even better. She states “my students found they didn’t need me to locate or create videos for them. Instead, they learned how to learn, and they were able to find their own resources” (Wright, Shelly, 2012). A shift occurred in Wright’s teaching and the flipped part of her class disappeared. She explains, “instead, our classroom had become a place where students discovered and shared their own resources, while engaging in projects with each other. There was no need for me to assign video homework or create portable lectures. It all happened during class” (Wright, Shelly, 2012). Wright classroom seems idyllic and in many ways seems like maybe the flipped part of learning is more for a stepping-stone to a student-centered, inquiry driven classroom. Unfortunately however, teachers who opt for the flipped classroom may not be pursuing a student-centered approach to teaching and learning, if the educational model is simply inverted there is no reinvention. Shelly Wright is telling the educational profession that students need to own their learning, only “then deep, authentic, transformative things happen in a classroom. It has nothing to do with videos, or homework, or the latest fad in education. It has everything to do with who owns the learning” (Wright, Shelly, 2012).

Fifthly, it’s unlikely that all students are going to watch the videos, which means they will be totally lost in class. While it is positive for students to own their education, what happens if they don’t? One teacher named Tiffany Whitehead at Central Middle School in Baton Rouge, LA states that "we have a lot of issues with apathy; some of them aren't going to go and do something, even if you beg them" (Springen, K. 2013). Nielsen, a teacher and opponent to flipped learning argues that not only are students not necessarily going to watch the video, you may as well have a tradition classroom because flipped learning isn’t improving education to begin with. He contends that if all the students were to watch the video there is “no differentiation other than when they watch the videos. There's no discovery. They're all going down the same narrow path…She calls it a "one-size-fits-all." (Springen, K. 2013). I can see Nielsen’s point, however for the sake of the argument, I believe that it is actually the class time that makes learning personalized and differentiated- not the time spent watching videos. There seems to be a lot of arguments that center on issue Nielsen discusses, I wonder if it’s because the strategy is too focuses on the video component and less on the class time that is hopefully used for inquiry, collaborative and project-based learning?

Lastly, when I went to try to make my own flipped learning video I realized that there is a steep set-up cost associated with creating high quality videos. I could have probably made a low quality, non-interactive one for free, but I would not subject my students to watching that instead of an in class (hopefully interactive) lecture. A major con for me is start- up cost, which currently land on the laps of teacher in most public schools and districts.

**The Comparison Chart:**

|  |  |
| --- | --- |
| PROS | CONS |
| -More class time dedicated to discussion, collaboration and problem- solving which makes class time more enjoyable for most students.  -Better class structure for project-based learning  -Teacher has more time to spend with individual students/ addressing needs of individual students  -Doing activities instead of listening to lectures helps students retain more information  - ESL students could translate the videos into different languages or subtitle them: easier and less discriminatory education.  -Students with learning disabilities could benefit from more personalized education and more teacher attention in class  -Promotes innovative technology development within education  -Promotes the creation of educational social platforms  -Students can use inquiry, despite the heavy course load because the bulk of content is delivered at home through videos  -Promotes concept-based learning which IB deems as best teaching practice  -Increases active learning during classroom time  -Creates more flexible classrooms- students can be working at their own pace and on different projects  -Students become more literate in technology  -Sick students don’t fall behind in content knowledge because they can watch from home  -Students can leave their education with a collection of educational videos that they can carry with them.  -Students carry less in their backpacks | -Socio-economic status is a factor- some schools would have a better ability to implement flipped classrooms than others  -Existing teachers would need to convert lessons to an online format which would take a lot of time and effort  -Education for teachers- would need to be extensive and would be expensive. Continual professional development would also be required.  -IB students would face time constraints as they have CAS, extended essays, sports, and personal lives. However an interesting study could compare how long IB students work on their homework compared to the length of time it would take them to watch the videos/ media. Regular students make be faced with an increase of homework hours  -Teachers would need to buy-in to the educational theory and practices of flipped learning.  -Data is not extensive and result heavily relies on anecdotal studies rather than empirical evidence.  -Some students just won’t watch the videos, and will try to get by just in class without the background content knowledge  -An increase in screen time for students  -Flipped learning is not moving away from less homework (which has not been proven effective- but towards a different kind of homework)  -There are startup costs associated with creating high quality flipped lessons- see below in the section “How to make your own educational video” |

**21st Century Learning and the Larger Story?**

Technology is revolutionizing education and the classroom environment in the twenty-first century, whether flipped learning is an adopted teaching strategy or not. While there are arguments for and against blended learning and flipped classes it is undeniable that students will need to develop literacy in technology during their education to be successful in most professions. Lodge McCammon, project director of the Institute for Educational Innovation at North Carolina State University and a former AP economics teacher states, "the traditional concept of lecturing is completely obsolete now. It doesn't work anymore.... The inefficiency of the classroom knocks people over. I would give the same 70-minute lecture three times a day to my students-210 minutes of lecture on the same topic,’ he says… ‘if you film that same lecture, it ends up being between 8 and 10 minutes’” (Springen, K. 2013). Correspondingly, Valenza, an educational researcher, expects that almost every textbook will be on an electronic device within the next 5 or 10 years (Springen, K. 2013). The introduction of technology into education has been happening for a while, and it is not just changing our teaching strategies. As educational environments continue to become more blended it will “require us to rethink much of what we have done procedurally, such as attendance, graduation requirements, seat time, substitute teachers, and class sizes” (Thiele, Hank 2013, 44). Bergmann, a teacher who implemented flipped learning into his classroom, believes that 21st century learning will change to be based on “a flexible learning environment, a revamped learning culture in the classroom, intentional content, and professional educators (LaFee, Scott. 2013,18). I believe that he is right, along with technology literacy I believe that education going forward will be revolutionized by the need for different work place skills along with a change in student and society expectations. Technology rich learning promotes innovative within education and promotes the creation of educational social platforms that will help bring forward new, alternative and potentially better teaching strategy, which I believe flipped learning is only a part of.

**My Take on the Matter and Links to my Practice**

I began this inquiry project believing that flipped learning was the answer to all the educational problems I could think of…students have more time in class to work together, teachers can act as facilitators of learning rather than delivering content and students can drive their own education through inquiry based learning with the support of peers and teachers. However, nothing is ever as perfect as it seems. Though my inquiry process I uncovered many unsettling aspects of flipping the classroom. One study in particular stood out to me, which really made me question ‘is flipping education really worth it’? It was a study of a sophomore-level linear algebra course at a mid-sized metropolitan university that compared the effectiveness of the traditional lecture and the flipped classroom (Love et al. (2014). Throughout the study the flipped classroom yielded some promising results including more student engagement and positive feelings towards their education. However, at the end of the semester the students from both classes had practically the same success- practically nothing was different between the two classes. The study was pro-flipped education, yet there was a strong sentiment that their needs to be more data developed on flipped learning before we can make any meaningful conclusions (Love et al. (2014). The utility and educational impact of the flipped classroom model still needs more researched and documented successes in specific content areas and courses before educators and administrators can make informed decisions to change instructional strategies in a substantial way (Love et al. 2014, 318). I leave this inquiry wishing that there was more, and stronger empirical data about the efficacy of flipped learning. I would love to see the field of education be revolutionized for the betterment of student learning, to see a school environment built on the individual needs of students and that values the skills the future will need. Like Thiele (2013) I think it is time to reconsider and perhaps reshape the structure of time, communication, collaboration, expectations, and the physical space of the classroom (44). For me it is still too early to say whether flipped learning is the answer, yet I do know that technology will have to be a major part of the educational revolution that will come.

For now, I would use flipped learning in my classroom, but not all the time and not if I had to pay for the resources I need to make quality videos, interactive presentations or podcasts.

**How to Make your Own Educational Video**

The content of this section is largely based on scouring YouTube clips for informative “how to” videos on making your own flipped lessons using videos. However, a step-by-step process on how to create a video lesson here would not provide much use due to the diversity of software and devices available that offer a wide variety of capabilities. Furthermore, a history or French flipped lesson would be very different to creating a science or math lesson therefore the process is varied and one size does not fit all. Instead of providing detailed instructions on how to create your own online lesson (when YouTube could do in it 10-15 minutes based on your subject matter) I have provided some of the resources you will need to get started. In particular, there are 4 things you need to acquire to create a high quality flipped lessons (Everything You Need to Make Educational Videos...More or Less, <https://www.youtube.com/watch?v=lFL6k-qwUaE>).

1. **Screen recorder (video and audio)**

Some examples include the TechSmith program called ‘Snag it’ which cost about 30$ after the education discount. Another higher end product is called Camtasia Studio, which costs 179$ with the education discount, this product provides the teacher with more variety and clarity. There are some free sites available but they tend to be choppier and poorer quality with less choice. Examples of free screen recorders are Screencastomatic, Screen Flow and Prezi.

1. **Writing device (digital pen)**

You will need a digital pen to create flipped lessons especially if you want to work through problems with your students. While the need for a digital pen is obvious for math and sciences it is also important in nearly all subjects. History and geography teachers draw on maps, images and articles where French and Spanish teachers work through verb conjugations. A small tipped pen is highly recommended as it allows for precision, especially for science and math problems where a lot of writing room is needed. Wacom is one recommended digital pen, which costs 79$, however there are many on the market at a variety of price points.

1. **Software/ App (digital paper)**

There are a huge variety of software/app options out there. Things to consider when deciding on your software are number of available colors you can write it (especially important for sciences and math), styles of pens available, and access to your favorite pens. One recommendation is Microsoft one note, however newer and better technology is continuously being developed so it is important to research and find out exactly what you want from your digital paper before purchasing software.

1. **Video Paper (somewhere to upload the video)**

Once you have completed creating your flipped lesson you will need to upload it somewhere so students can access it. The digital paper is usually free and there are many ways you can do this. Some examples include YouTube, Google Videos, or create your own blog or website where you upload your videos onto. All these option allows you to choose privacy settings so only your class can see the video.

Finally, teachers everywhere state that students “these days” expect videos to be of good quality. Students are a custom to high quality/high definition videos and do not take the lesson as seriously and/ or do not enjoy watching them as much if teachers do not invest in making flipped lessons high quality.

**Work Citied**

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# YouTube Clip: Everything You Need to Make Educational Videos...More or Less (2013) Uploaded by Mathontheweb.

<https://www.youtube.com/watch?v=lFL6k-qwUaE>

Youtube Clip: Salman Khan: Let's use video to reinvent education. (2011) Uploaded by Ted Talks. <https://www.youtube.com/watch?v=nTFEUsudhfs>