THE PEDAGOGY OF FLIPPED INSTRUCTION IN OMAN

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ABSTRACT
"Flipping the classroom", or reverse instruction has been hailed the new pedagogical approach for preparing students for the 21st century. The idea behind this method is relatively simple. Instead of structuring class work to deliver direct instruction from the teacher in class and giving homework to students to practice outside of class, the sequence is reversed, or "flipped" to provide content instruction as homework and practice or application in the classroom. This paper focuses on the pedagogy of flipped instruction and the experiences of the flipping method with graduate students in Oman. The paper concludes with thoughts about the intrinsic value of flipped instruction within traditional educational systems.

INTRODUCTION
At Sultan Qaboos University, educators recognize the need to provide authentic and relevant content and skills for their students with the support of the new technologies. The College of Education at SQU has begun to rethink not only *what* we teach students but also the pedagogical *ways* with which we teach the new technologies. Exploring the pedagogy and the method of flipping instruction and the role technology plays in delivering the content is the purpose of this investigation. *Flipping*, or reverse instruction reorganizes the classroom instruction and particularly, the time and place instructors deliver content. A group of Omani graduate students experienced flipped instruction in their educational technology course during the spring semester of 2013. The journey made by this group of Omani graduate students through the flipped landscape is investigated here.

FLIPPING INSTRUCTION
The term *flipping* was coined when two chemistry high school teachers, Jonathan Bergman and Aaron Sams, decided to record videos of their chemistry lectures for students missing their classes. The videos were a big hit, other students asked to use them and soon, Jon and Aaron noticed substantial improvements resulting from their change of content delivery. The two applied flipped instruction to entire classes and the flipped classroom was born (Bergmann and Sams, 2012).

The concept behind this approach is relatively simple. The flipped classroom flips where and when homework and lecture takes place. Instead of structuring class work to deliver direct instruction from the teacher in class and giving homework to students to practice outside of class, the sequence is reversed to provide direct instruction as homework and applied practice in the classroom. Instead of the teacher using classroom time to deliver the content, the students engage in direct content delivery through technology supports outside of class time. As simple as this may sound, the process is often misunderstood.

When content delivery can be provided outside of class time, the students' class time with the instructor can be used for review of the content learning, deeper discussion of the content information, or application of the content knowledge. Freeing up that "lecture" time allows the instructor to pay more attention to the students' needs in relation to their mastery of the content and adjust the supports to better fit individual needs.

What flipping is not is only using digital videos to increase students' seat time in front of computers. The students may be listening to a podcast or watching a video during that homework time but these modes of delivery do not extend into longer periods or into the class time. Flipping is also not synonymous to online videos, or online courses, nor are students expected to learn without structured activities. The students are no more passive than they are when they are traditionally sitting in their classroom seats listening and taking notes during an instructor's lecture. In fact, with flipped instruction, note taking is an integral part of homework as it requires students to summarize meaning from the direct instruction and provides the instructor with needed information on the students' understanding (Bergmann and Sams, 2012). This is not a movement to replace instructors with the new technological delivery tools either. Perhaps more than ever, the instructors' importance in the classroom is critical for learning to take place beyond rote memorization and theoretical learning (Bennett, 2011).

SUPPORTING LEARNING IN THE 21ST CENTURY

What flipping also is not…is new. John Dewey (1938) promoted the focus of class time on application and "learning by doing" early in the last century. Bergmann and Sams saw the opportunity to utilize the new technology tools to support an alternative way of teaching and learning that frees up class time.

> We do not claim to have invented some new pedagogy, and we have not tried to brand an innovation. We simply saw a need and met it with an available technological tool – and have been so excited with the results that we felt compelled to tell the world (Bergmann and Sams, 2012, p. 111).

Flipping also reminds us again what John Dewey and others described at the turn of the last century: learning must center on students and allow them to show their mastery in more authentic ways. Perhaps the most notable instructional philosophy behind flipping is Benjamin's Bloom Mastery Learning approach made famous in the 1960s. In the Mastery Learning classroom, students are provided multiple methods of mastering the knowledge and multiple opportunities for demonstrating their knowledge both formatively and summatively. Mastery learning helps students with content where a strong foundation is needed before moving into more complex, higher order thinking and reasoning (Bloom, 1974). Flipped instruction provides the content instruction outside the classroom before students and teachers begin applying the content to deeper exploration and application in the classroom. Exploring the pedagogy and the method of flipping instruction is about examining the way we teach, not just about considering how we use technology to deliver content. As importantly, flipping allows full utilization of the technology tools available to 21st century teachers to further enhance the direct instruction experience for students.

THE CONTEXT

Students at Sultan Qaboos University are now connected to the Internet both in school and at home. In spite of the students' rich-technology resources, their cultural paradigm for teaching and learning remains traditional with an educational system that relies almost entirely on the teacher to deliver course content. However, with the convergence of technological innovations and pedagogical shifts, Sultan Qaboos University is restructuring classroom teaching and changing traditional strategies to improve content delivery and update practices for teaching and learning. The purpose of this study is to help understand the potential impact flipped instruction has when used to integrate new technologies in the Omani classrooms.

RESEARCH DESIGN

Small-scale implementation using exploratory qualitative methodology was chosen to deeply investigate the processes of flipped instruction within the cultural context of Oman. Educational researchers advocate identifying the teaching practices and underlying assumptions of participants when developing research designs (Bednar, Cunningham, Duffy, and Perry, 1992). Data was collected and analyzed through surveys to establish a baseline of the teachers' demographics as well as a baseline measure of their attitudes and current practices in education. Though the group was small, the purpose of this qualitative investigation was to go deeper than a large group quantitative study could produce (Kitzinger, 1995; Patton, 1987). The intent to explore the cultural implications required the participants speak authentically on these potential cultural responses that might challenge traditional practices. Open-ended questions were used to allow the participants to respond in their own words that can encourage rich and deeper insights to emerge (Denzin and Lincoln, 2000). The use of open-ended questions allows responses to be more meaningful and culturally salient to the participants, especially when the researcher may not anticipate their content thus allowing for new ideas to emerge that were not anticipated at the onset of the research (Patton, 1987). Using multiple methods triangulates the data and strengthens the credibility of the study (Stake, 1995). Interviews and participant observations can describe attitudes and feelings that would be difficult to measure using quantitative methodology.

Participants

The Instructional and Learning Technologies Department provides one educational technology course as part of the two year Educational Master's program. The course goals are to present opportunities to explore a variety of powerful technologies that support teaching and learning framed within a sound pedagogical educational technology framework. By providing graduate students opportunities to explore technology-supported strategies, new methods can be assimilated into their own learning to develop innovative teaching techniques themselves (Poole, 1997). These participants are master teachers who are recognized by the Omani Ministry of Education as well experienced, highly qualified practitioners demonstrated by past performance evaluations, head master references, and peer-teacher recommendations. They are being prepared to develop innovative teaching techniques with a variety of technologies, perfect their metacognitive skills, and prepare for educational leadership among Omani educators.

Instruments

Four methods of data collection were used – surveys, participant reflections, instructor observations, and a focus group interview. Participant surveys are three 10 question surveys that asked specific questions about participants' demographics, their general attitudes about education and their current educational practices. The questions on general attitudes toward education were designed to elicit participant information on currently held assumptions toward education in general, particularly the role of active learning, direct instruction, homework, and professional development. The questions on current educational practices were designed to elicit participant assumptions on the same topics but focused on the participants' own practices in the classroom and the practices they experienced at university. The relationship between the two sets of questions hoped to shed light on both the currently-held assumptions the participants had toward and the realities they experienced in their own teaching and learning. Course Unit reflections elicited feedback from the participants about each unit's content, how the participants felt about the experience, their successes, challenges, and how they would improve it. Instructor journal observations focused on participants' skill readiness, educational habits, attitudes toward the activities, and performance with the assignments. A focus group interviews was chosen for this pilot to encourage research participants to explore the issues of importance to them, using the group dynamics to prompt discussion. Open-ended questions were used to promote reflection by the participants.

The surveys was administered in class during the second week of the course with the online program *SurveyMonkey* to establish a foundation of information about the participants as well as their experiences and attitudes toward education. Unit 1 reflections were completed during Week 4 to elicit participant feedback on the Unit 1 content experience. At the end of Unit 2 in week 8, and again in Week 12 after Unit 3, participants were asked to reflect on the units' content and experiences. All three unit prompts were made available to the participants on *Moodle* throughout the semester where they could add or edit their feedback throughout the course. During the last week of Unit 4, a focus group session was held to reflect on the flipped instruction and considerations for teaching and learning in Oman. The focus questions prompts were distributed to the participants the week before. The instructor journal observations began in Week 2 and continued through Week 15 that recorded observations of participant interactions with the course content, activities, colleagues and materials.

RESULTS

All the data was collected and analyzed during the spring of 2013. Participant surveys, unit reflections, journal observations, and focus group interviews provided the summation of data. Results from the surveys, reflections, interview, and observations were analyzed using coded classification to identify patterns, connections, and emerging themes. Each data source is reviewed separately here and conclusions drawn based on the outcomes summarized in the tables below.

Participant Surveys

The participant group was made up six high school teachers and one primary grade teacher with six females and one male. All students had over four years of teaching experience, all were internet-connected at home and at the university, and all owned internet-accessible smart phones as well as either a laptop, tablet, or iPad.

The researcher's observations from the past three years suggest the demographic profile of this group of participants were typical of other groups of master teachers. The only observable change noted was the better internet connectivity this group enjoyed compared to groups from prior years. This change parallels the observed increase of internet connectivity among the general SQU student population as Omani higher education catches up with the 21st century technological advancements.

Table A: Shows the Participant Information Survey results. The percentage of participants' responses is presented with the number of participants responding out of the total of seven provided in parenthesis.

Do you have Internet connection at home?	Yes	No
Do you have a mobile phone?	100% (7 out of 7)	00% (0 out of7)
Do you have "smart" phone (Internet accessible)?	100% (7 out of 7)	00% (0 out of7)
Do you have a laptop, tablet, or iPad?	100% (7 out of 7)	00% (0 out of7)
Used Internet before coming to SQU?	Yes 85.71% (6 out of 7)	No 14.29% (1 out of 7)

Gender		Female 85.71% (6 out of 7)	Male 14. 29% (1 out of 7)
Choose the number of years of teaching experience.	4-7 years 57.14% (4 out of 7)	8-12 years 28.57% (2 out of 7)	More than 12 years 14.29% (1 out of 7)
Choose the grade level of your students.	1-4 grades 14.29% (1 out of 7)	5-12 grades 85.71% (6 out of 7)	

Participant surveys were distributed that focused on general attitudes about education and current educational practices. The currently held assumptions by participants revealed that all agreed active learning was important in the learning process and instructional delivery strategies were major components for best practices. All participants agreed that learning new strategies was a life-long learning trait in the learning process and all agreed that professional development workshops were useful for teachers. Not all agreed that their schools and their university program encouraged the use of new strategies in their teaching and that they were provided frequent opportunities to "learn by doing" in their teaching or their learning. Most participants (5) agreed direct instruction was a sound instructional delivery method but only 3 agreed that direct instruction was their main teaching strategy for delivering content. Most respondents generally agreed (6) or remained neutral that other methods such as problem-based learning and discovery learning can be as effective as direct instruction. This may indicate that this group of students used a variety of teaching methods for content delivery.

All agreed homework was frequently required from their university program though not all agreed they frequently required homework from their students. Even though all participants stated they frequently take time in class to complete homework with their students, less than half of the participants agreed their students completed the homework when it was assigned. Only 2 participants agreed their instructors at the university take time in class to complete homework with them.

Note taking was also established as important for the learning process and they all agreed they frequently take notes during their own learning process; not all participants however, agreed they required note taking from their students during class.

Table B: Shows the Participants Survey results from General Attitudes about Education and Current Educational Practices. The percentages of participants' responses are provided below with the number responding out of the total of seven in parenthesis.

SA = Strongly Agree (5) A = Agree (4) Neutral (3) D = Disagree (2) SD = Strongly Disagree (1)	**Frequency of Responses %**				
	1	**2**	**3**	**4**	**5**
General Attitudes about Education					
1. Instructional delivery strategies are one of the major components for best practices in the educational process.	00% (0 out of 7)	00% (0 out of 7)	00% (0 out of 7)	28.57% (2 out of 7)	71.43% (5 out of 7)
2. My university program of studies in my department encourages exploration of new strategies of instructional delivery.	00% (0 out of 7)	00% (0 out of 7)	14.29% (1 out of 7)	28.57% (2 out of 7)	57.14% (4 out of 7)
3. Active learning is an important component in the process of learning.	00% (0 out of 7)	00% (0 out of 7)	00% (0 out of 7)	14.29% (1 out of 7)	85.71% (6 out of 7)
4. Direct instruction is a sound method of instructional delivery for providing learners with new information.	00% (0 out of 7)	14.29% (1 out of 7)	14.29% (1 out of 7)	28.57% (2 out of 7)	42.86% (3 out of 7)
5. Other methods of providing new information to students such as problem-based learning and discovery learning can be as effective as direct instruction.	00% (0 out of 7)	00% (0 out of 7)	14.29% (1 out of 7)	28.57% (2 out of 7)	57.14% (4 out of 7)
6. Learning new strategies in teaching and learning is a life-long process for teachers.	00% (0 out of 7)	00% (0 out of 7)	00% (0 out of 7)	14.29% (1 out of 7)	85.71% (6 out of 7)

7. Note taking is an important skill for learners to enhance their retention of new materials.	00% (0 out of 7)	00% (0 out of 7)	00% (0 out of 7)	00% (0 out of 7)	85.71% (6 out of 7 - 1Skipped)
8. Homework is a necessary element in the learning process.	00% (0 out of 7)	00% (0 out of 7)	14.29% (1 out of 7)	42.86% (3 out of 7)	42.86% (3 out of 7)
9. All my students complete their assigned homework.	14.29% (1 out of 7)	14.29% (1 out of 7)	28.57% (2 out of 7)	00% (0 out of 7)	42.86% (3 out of 7)
10. Professional development workshops for teachers are generally useful.	00% (0 out of 7)	00% (0 out of 7)	00% (0 out of 7)	42.86% (3 out of 7)	57.14% (4 out of 7)
Current Educational Practices					
1. My school encourages me to use new strategies in my teaching.	00% (0 out of 7)	00% (0 out of 7)	00% (0 out of 7)	57.14% (4 out of 7)	42.86% (3 out of 7)
2. My main strategy for delivering content is direct instruction.	00% (0 out of 7)	42.86% (3 out of 7)	14.29% (1 out of 7)	14.29% (1 out of 7)	28.57% (2 out of 7)
3. My students are provided frequent opportunities to "learn by doing" in their learning process.	00% (0 out of 7)	00% (0 out of 7)	14.29% (1 out of 7)	57.14% (4 out of 7)	28.57% (2 out of 7)
4. I am provided frequent opportunities to "learn by doing" in my learning process at SQU.	00% (0 out of 7)	00% (0 out of 7)	14.29% (1 out of 7)	42.86% (3 out of 7)	42.86% (3 out of 7)
5. I frequently require my students to take notes during class.	00% (0 out of 7)	14.29% (1 out of 7)	00% (0 out of 7)	14.29% (1 out of 7)	71.43% (5 out of 7)
6. I frequently assign homework to my students.	00% (0 out of 7)	00% (0 out of 7)	14.29% (1 out of 7)	14.29% (1 out of 7)	71.43% (5 out of 7)
7. I frequently take notes during class in my own program of studies at SQU.	00% (0 out of 7)	00% (0 out of 7)	00% (0 out of 7)	14.29% (1 out of 7)	85.71% (6 out of 7)
8. My instructors at SQU frequently require me to complete homework.	00% (0 out of 7)	00% (0 out of 7)	00% (0 out of 7)	28.57% (2 out of 7)	71.43% (5 out of 7)
9. I take time in class to complete homework with students.	00% (0 out of 7)	00% (0 out of 7)	00% (0 out of 7)	42.86% (3 out of 7)	57.14% (4 out of 7)
10. My instructors at SQU take time in class to complete homework with me.	00% (0 out of 7)	42.86% (3 out of 7)	28.57% (2 out of 7)	00% (0 out of 7)	28.57% (2 out of 7)

Unit Reflections

Several dominant patterns emerged from the responses in the Unit Reflections. Coded classification was used to track those words and ideas most frequently emerging that helped to identify the themes. All the participants claimed positive impressions of the flipped experience, stating "it is a really great technique" and the "Ministry of Education in Oman should rethink and review the teachers' guides to flip teaching". One commented that "by summarizing the discussions of the flipped tasks" may help students better understand the materials. One participant cautioned however, that "teachers need to be careful not to over-flip as this can be overwhelming for students". Another warned that "locus of control" of the classroom was changed by flipping and would require planning for flipping to be successful in Omani classrooms. Several complained on the unreliable internet access that was experienced throughout Omani schools. One student pointed out that "most of our students do not have internet access at home." Several themes emerged from these discussions that have been identified by the researcher tabled below.

Table C: Summarizes the major themes that emerged from the Unit reflections on flipping.

Topic	Emerging Patterns
Flipped Instruction	Enthusiasm about flipping and its educational value
	Several saw using this method in workshops with fellow teachers
	All struggled with somewhat when flipped lesson planning
	All had concerns about using this method in the Omani classrooms
	Internet access was not consistent or reliable in Oman

Focus Group Interview

During the focus interview, participants demonstrated both enthusiasm and trepidation with the flipping strategy. "The pedagogical use [of flipping] was at first confusing" as "we shift education to learning". Several participants identified the only the "slow learners" benefitting from this method, allowing more time in the classroom for teachers one-on-one assistance. There were also participants' comments on surprise of "being so highly inspired" by the processes and that many classrooms in America already had the flipped method in place. There was some participants questioning the "added value" to students' learning and stating there was a need to "feel it first, to experience it" in order to fully understand it. Participants repeatedly identified obstacles to technology integration in Omani education – outdated machines, inconsistent connectivity, and lack of teacher training.

These emerging patterns are identified from the open-ended discussion questions using coded classification to track words and ideas most frequently emerging that identified the themes. Limitations present using open-ended questions include multiple interpretations by the participants as well as multiple responses unrelated to the discussion. The value of emerging information from an open-ended question interview is that new information is allowed surface that may not have been anticipated by the researcher (Patton, 1987). Below is a summary of the major themes identified by the researcher from the focus group interview.

Table D: Summarizes the major themes that emerged from the participant focus group session.

Topics	Emerging Patterns
Flipped Instruction	Flipping backed by sound pedagogical reasoning for reversing content delivery
	Flipping required to rethink activities and timings
	Flipping required educating school administration, colleagues, and parents
	Flipping required observing cultural mores in Oman

Instructor Journal Reflections

As with the participants' reflections, several patterns weaved throughout the journal entries that were identified by the frequency of the words and ideas used throughout the observations. The one course instructor, who observed the participants behaviors and attitudes with the flipped activities, noted positive responses from all the students when introducing the new flipping approach. "The students seem to welcome the challenges I present them as they think of examples about flipping. They seem to have easily absorbed the methodology". The instructor noted however, though the participants appeared enthusiastic, they were also impatient with the theoretical in-class discussions, and "they often seem hungry for more hands-on experience with these processes". The participants often asked for explanations for using this strategy in their course curriculum.

Participants appeared to struggle with applying the flipped strategy in homework activities at times. They did well when their own direct content learning as homework though note taking was not always evident. However, when participants were asked to design lesson plans for K-12 students, they stumbled when transferring the experience to lesson design. The lesson plans consistently ran over the assigned time frames within the lesson and the participants struggled with their own due dates for the lesson plan assignments.

The participants' seemed reluctant to use the flipped method with their K-12 students. Several were willing to use flipped instruction with their colleagues in workshops but all expressed concern that K-12 Omani students were not ready for flipping in the classroom. Concerns with classroom management, lack of support from their colleagues, administrators and parents, and questionable educational added value were most often raised during the discussions.

Table E: Summarizes the major themes that emerged from the instructor journal reflections.

Topic	Emerging Patterns
Flipped Instruction	Instructor observed enthusiasm and curiosity among all students
	Instructor struggled with timing and engagement of activities in planning
	Instructor observed some students not completing the note taking with homework assignments
	Instructor recorded concerns among students about using the flipped method in Omani classrooms
	Instructor observed convenience of anytime anywhere connectivity

DISCUSSION

The purpose of this study is to help understand the potential impact of flipped instruction with Omani educators as well as examining what this may mean to the wider educational community. Results of the data collected through the different instruments provided both participants and instructor opportunities to observe and consider the realities of teaching and learning in Oman. Participant surveys disclosed assumptions of best practices were not always experienced in their own teaching and learning. Participant reflections and interviews allowed for considerations of cultural affects to surface with the flipped experiences. Instructor observations provided a difference source to reiterate the mismatch of participant assumptions – flipping was a positive experience for participants – with expectations – flipping was not considered appropriate to extend to the K-12 Omani classroom. Limitations of this study were the small number of participants, the one semester timeframe, and open-ended questions with a foreign researcher. Perhaps with a larger group over a longer time period with Omani researchers framing specific questions, new data could better inform this inquiry.

Flipped instruction appears to the researcher, an appropriate bridge to integrate new technologies into a traditional educational system and the participants seemed motivated to adopted the flipped instruction to their own learning and that of their colleagues, Given their own struggles to design flipped lessons, their expressed concerns with the wider Omani community, and perhaps the unexplored concern of what to do with the freed-up time in class from giving lectures, it appears that the participants do not seem ready to apply this to the Omani K-12 classrooms. Though a small step, it can be viewed as a starting point for teachers to begin experiencing, considering, and eventually applying new learning strategies to their own teaching with K-12 students.

More time and extended experiences may be required for integrating flipped instruction to the K-12 classrooms in Oman. Educators recognize that change in schools happens slowly when individuals take the small steps toward transforming the experiences of their students (Fullan, 1995). Educators may need to expand the width of exposure to flipped instruction by including it in other courses in the Masters' program. In addition, it may also require extending the experiences of flipped instruction to undergraduate teacher preparation courses to expose larger numbers of Omani educators to flipping earlier in their university education. Lastly, active teaching in class may need further exploration when teachers free up lecture time in class. This may also be the next group of participants for the researcher with an Omani colleague to widen the inquiry with numbers of participants and to deepen the investigation into the cultural impact this change may stimulate.

CONCLUSION

The added value for flipped instruction in Omani classrooms may rest on Oman's tradition of direct instruction in education. Flipping could walk that fine line between progress and cultural responsiveness by providing a palatable approach toward improving the technology integration and how to think about transforming educational practices.

> Strong constructivists and die-hard project-based learning advocates will say that we have not gone far enough in handing over the learning to our students. They may be right. However, flipping the classroom is an easy step that any teacher can take to move away from in-class direct instruction to more student-directed and inquiry-based learning (Bergmann and Sams, 2012, p. 111).

Perhaps this study's achievement is how the inquiry successfully extends this conversation to stimulate further discussion and action among local faculty, students and administrators. Exploring the method of flipping instruction is about considering better ways to support teaching and learning with all the tools available to us. Equally important, this inquiry is about considering the cultural contexts that surround potential changes in educational institutions and how these challenges may be faced. In the end, it is not just about reversing the place we deliver content but it is also revisiting the contextual reasons why we would do so.

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