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Perspectives from graduate students on effective teaching methods: A case study from a Vietnamese Transnational University

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Abstract
Vietnam is emerging as an accelerated economic and political society with an increased global presence; thus, increased attention has been given to producing qualified college graduates who can contribute to the growing global economy. Yet challenges exist due to lack of educational infrastructure and ineffective teaching practices. As a result, the Vietnamese government embraces international collaborations in higher education as a way to address educational needs; however, although research exists on policy implications and government priorities, very little is known about how students perceive the teaching methods provided at these collaborative transnational universities. The purpose of this qualitative case study is to examine graduate students' perceived effectiveness of teaching methods at Vietnamese-German University (VGU), a predominantly technology and engineering university that is an international collaboration between Vietnam and Germany. We seek to answer the research question of, 'how is the use of student-centered practices effective in an international learning environment?' Findings from graduate students indicate that collaborative learning, specifically through group work and modified flipped classrooms, are effective ways to maximize student learning. Implications for practice and future research are discussed as ways to emphasize the benefits of student-centered teaching and learning at transnational collaborative universities.

Keywords: Collaborative learning, globalization, graduate students, Vietnam, student-centered learning

In recent years, Vietnam has emerged as an accelerated economic and political society with an increased global presence. Since the mid-1980s, Vietnam has responded to the *doi moi* ('Renovation') policy enacted by the Vietnamese Communist Party with goals of a modernized and industrialized market-driven economy (Hayden and Thiep 2007). Such changes affected

higher education because it is viewed as 'a key driver in the country's move from a centrally controlled economy to a market-led economy with a socialist orientation' (Harman and Bich 2010, 66). As a result of this shift, increased attention has been given to producing qualified college graduates through the shift to a learning paradigm and reconsideration of pedagogical practices (Harman and Bich 2010), particularly within a global dimension.

Despite the Vietnamese government's push to improve higher education, challenges exist as a result of a lack of resources to support a strong educational infrastructure, issues with governance, and ineffective teaching practices (Nghi 2010). As a result, graduates of Vietnamese higher education institutions are found to lack the skills necessary for contributing to the professional workforce, and overall, university training has not been successful in meeting the needs of employers in Vietnam (Trung and Swierczek 2009). Vietnam's new market-based, global economy requires workers to not only possess technical skills, but also general soft skills that enable workers to think creatively, take initiative, and work independently under pressure (Pham 2008; Tran 2013; Trung and Swierczek 2009). In order to meet the need for better-prepared graduates, higher education institutions are urged to reconsider learning approaches in the classroom. Specifically, student-centered practices such as collaborative learning and active teaching are needed to better engage and support learners in the classroom (Harman and Bich 2010; Trung and Swierczek 2009).

With an emphasis on effective student learning, it is important to understand student perspectives on their educational experience at a Vietnamese university. The purpose of this paper is to examine graduate students' perceived effectiveness of teaching methods at Vietnamese-German University (VGU), a predominantly technology and engineering university. The site is of particular importance because unlike the typical offshore branch of one higher education institution, VGU was established in 2008 as a transnational collaboration between two different governments: the Vietnamese Ministry of Education and Training (MOET) and the Hessen State Ministry of Higher Education, Research and the Arts (HMWK) in Germany. In addition, all instruction and communication at the university is conducted in English at VGU. Thus, English, as the non-native language for both Vietnam and Germany, is used as *lingua franca*, the common language for all university operations and teaching. The site is indicative of higher education institutions in Vietnam embracing opportunities to collaborate internationally to address specific educational needs, including language and skill development, as VGU is one of four collaborative transnational universities in Vietnam. Other institutions include partnerships with France, Russia, the United States, and Japan, and all emphasize science, technology, engineering, and/or maths as the primary programs of study.

Because of the growing number of collaborative transnational universities in Vietnam, we seek to answer the research question, 'how is the use of student-centered practices effective in an international learning environment?' We first provide a review of relevant literature on student-centered teaching and learning, and briefly discuss teaching and learning within the Vietnamese context. We present findings from this study, which may indicate how and why graduate students have preferences for student-centered learning environments and practices utilized by German faculty at VGU. Finally, we provide recommendations for future research and implications for practice. Understanding student attitudes and perceived effectiveness toward these learning styles will assist institutions in better supporting student needs as well as provide an understanding of why students choose institutions based on Western higher education in their home country of Vietnam.

Active learning: student-centered teaching and learning

Student-centered teaching and learning covers a broad array of pedagogies in higher education, including, but not limited to, collaborative learning (Tran 2014; Weimer 2013), cooperative learning (Johnson, Johnson, and Holubec 1993), problem based learning (Davidson and Major 2014), and active learning (Bertelsen, Ying, and Solinap 2013). Davidson and Major (2014) believe that while these pedagogies are similar in their use of small working groups, the various approaches are inaccurately grouped together or too often considered interchangeably. Yet despite some differences, student-centered teaching and learning always centers the student as the priority and they create their own knowledge based on interactions with classmates (Bertelsen, Ying, and Solinap 2013; Thanh, Gillies, and Renshaw 2008; Weimer 2013), all of which are the foundation of active learning.

Active learning is described simply as 'any learning activity engaged in by students in a classroom other than listening passively to an instructor's lecture' (Faust and Paulson 1998, 4). Active learning tends to lead to better student attitudes in the classroom as well as improved thinking and writing skills (Bonwell and Eison 1991). Benefits of active learning include increased social integration and student persistence in college (Braxton, Milem, and Sullivan 2000). Active learning is especially useful for students in science, technology, engineering, and math (STEM) majors. For example, Freeman et al. (2014) found that STEM courses with traditional lecturing led to higher rates of student failure, whereas classes based on active learning principles had improved examination scores. Thus, based on the findings, active learning in STEM classrooms could be a preferred method of increasing student

learning and success. This makes a compelling case for using active learning processes in Vietnamese STEM education, especially because of the current accelerated market-driven economy. The shift to a market-led economy prioritizes moving towards a learning paradigm, which encompasses active learning, as a way to advance technology and better prepare graduates (Harman and Bich 2010).

Despite heavy global influence, Vietnamese higher education classrooms are typically taught in a more established teacher-centered, rote style (Thanh, Gillies, and Renshaw 2008; Thanh 2011). But the adoption of a more Western style of teaching, which is traditionally more student-centered, has been encouraged in Vietnamese higher education by those seeking education reform. Two of the main pedagogies being implemented include collaborative and cooperative learning (Thanh, Gillies, and Renshaw 2008; Thanh 2011). In order to better understand these multiple approaches to active learning, we provide an overview of the functions and foundations of student-centered and active learning. Specifically, we address literature that has been built by scholars on active learning processes and strategies including collaborative learning, group-work, and the flipped classroom method of instruction.

Collaborative learning

For the basis of this study, the theoretical focus was on collaborative learning, which is strongly tied to constructivist theory (Davis 1997; Dinter 2009; Ng 2015; Weimer 2013) and often includes group-work **(**Weimer 2013; Bruffee 1993; Davidson and Major 2014). According to Matthews (1996), collaborative learning 'occurs when students and faculty work together to create knowledge' (101). Most importantly, collaborative learning includes the assumption that 'people making meaning together' (101), and as a result, deeper learning as a result of meaning-making occurs for all participants. Collaborative learning is often mistakenly used interchangeably with other types of active learning processes, including cooperative learning (Davidson and Major 2014). Collaborative learning and cooperative learning, which are both forms of active learning, have many elements in common such as collectively objecting to more rote style teaching methods, 'favour[ing] active engagement'…, and 'encourage development of content knowledge and related skills' (8). However, origins and intended outcomes set them apart (Davidson and Major 2014; Prince 2004). Cooperative learning has the goal of learning academic content but being interdependent in nature. Cooperative learning is also more structured in the active roles that students are given to stimulate participation (Davidson and Major 2014). Collaborative learning, on the other hand, is described as having the goal of giving

students the 'substantive responsibility for working together' (22) and 'construct knowledge through their interactions with each other' (23) while 'developing independence through interdependence' (21). While collaborative learning is a less-structured method than cooperative learning, the 'independence through interdependence' allows students more opportunity to make own their meanings and develop other interpersonal skills through these collaborative activities.

A large component of the collaborative learning methodology is the social aspect, which is made up of both faculty and student contributions. Further examination of the social aspects of collaborative learning explore the use of group work and their perceived impact on students (Mamas 2017; Lavy 2017). Davidson and Major (2014) offered a perspective on what they identify as one of the central roles of student contributions in a collaborative learning environment – *talk*. Barnes (2008) stated, 'exploratory talk provides an important means of working on understanding' (6). Davidson and Major also discussed types of talk that are categorized by Pierce and Gilles (2008), which include 'social talk, exploratory talk, presentational talk' (23). Thus, conversation and talking are an integral part in establishing a strong collaborative learning environment, as evidenced in the practice of effective group work.

Group work

A significant component of collaborative learning lies in the group work assigned as part of the active learning curriculum. The structured approach of group work is often discussed as a major component in student-centered teaching and learning (Cranton 2016; Davidson and Major 2014; Prince 2004; Thanh, Gillies, and Renshaw 2008; Thanh 2011; Weimer 2013). This is one area where collaborative and cooperative learning converge, but their functions diverge in the intended outcomes, including 'how groups are formed,… the structure of the group, and the role of the teacher' (Davison and Major 2014, 30). While examining the benefits of group work as an interventionary method of problem- solving skill building in the sciences, Cooper et al. (2008) described collaborative learning as 'typically classified as a less-structured form of cooperative learning. Students working in collaborative groups may work together on a short-term task, without formal roles or learning goals' (868).

The importance of group work in a collaborative learning context is that the student groups facilitate and contribute to the knowledge construction of the other group members in support of constructivist theories of learning. Constructivism presents the ideology that the learner is instrumental in their own development of knowledge, and in the case of group work, includes

the development of their peers. Many scholars (Cooper et al. 2008; Weimer 2013), including Davidson and Major (2014) believed, 'the development of learning in small groups in higher education has occurred, in small part, because of strong evidence indicating that students working in small groups out perform their counterparts in a number of key areas' (7). The benefits of group work assist in the heightened engagement of students, further enhancing the collective knowledge construction.

Group work has been proven to be an effective practice for increasing students' second language acquisition (Felder and Henriques 1995; Long and Porter 1985; Sugino 1994). Group work has multiple benefits, including increasing language practice opportunities, improving the quality of student talk, and motivating learners (Long and Porter 1985) by encouraging 'two-way interactions among students' (Sugino 1994, 103). The interactive nature between language learners allows for increased practice as well as engagement in the classroom. Group work is especially helpful for language learners who tend to be active or reflective learners; however, this is also where some objections exist, stemming from concern that less outward personalities would not see benefit in group work (Lavy 2017; Rafferty 2012; Sugino 1994). Despite the criticisms, passive students still benefit from group work and students who have a self-perception of struggling with group work based on social interaction saw favorable experiences (Lavy 2017; Rafferty 2012; Sugino 1994; Sweeney, Weaven, and Herington 2008; Weimer 2013). As a result, students can engage in the learning process and these groups provide 'a rich source of responses and material for subsequent discussion' (Felder and Henriques 1995). Thus, group work can be an effective strategy for students who are learning a second language.

The flipped classroom

Flipped classroom models have become a significant component of active learning, both in undergraduate (Bergmann and Sams 2012; Freeman et al. 2014; Zappe et al. 2009) and graduate STEM education (Street et al. 2015; Tune, Sturek, and Basile 2013). Flipped classroom models are often described as allowing students to create a more personalized learning experience as they are direct engineers of their knowledge construction, both through homework and in-person class engagement (Bergmann and Sams 2012). Thus, learning is promoted by 'flipping' the traditional classroom structure of instructors lecturing though an entire class; rather, in the flipped model, the teacher serves as the expert who responsively guides students through practical application of content in class after students view lectures at home prior to the start of class.

The broad description of flipped classrooms fits many of the elements of a student-centered or collaborative pedagogical model (Ng 2015). Some elements of a flipped classroom can include group work during the course portion of the learning process, with reading, group-problem solving, and video lectures taking place outside of the classroom (Bergmann and Sams 2012; Ng 2015; Wong, Tee, and Lim 2014). Benefits of the flipped classroom that are aligned with the researched benefits of a student-centered learning model include: self-directed learning that allows students to absorb the material at their own pace and revisit topics/vocabulary that requires extra time; more contact time between students and faculty members; stronger team building skills and peer to peer relationships can be built; building of reflective thinking skills; and motivation of students by use of technology and engagement in content learning (Bergmann and Sams 2012; Ng 2015; Wong, Tee, and Lim 2014) .

The literature on flipped classroom varies because of different programmatic, topic, and subject siloing in higher education. Across the board, the over-arching sentiment is that flipped classroom pedagogical techniques are an effective way of implementing student-centered teaching approaches in facilitating student learning and cognitive growth (Lage, Platt, and Treglia 2000; Ng 2015; Roehl, Reddy, and Shannon 2013). Ng (2015) highlighted studies of higher education environments and the effectiveness of flipped classroom pedagogies in student learning (Bishop and Verleger 2013; Lage, Platt, and Treglia 2000). Many of these studies 'reported on improved attitudes towards the flipped classroom pedagogy with many of the studies reporting significant gains in student performance' (Ng 2015, 160).

Teaching and learning in Vietnam

Vietnamese education has traditionally followed teacher-centered approaches, with students as passive receptacles for rote learning (Harman and Bich 2010; Thanh 2010; Tran 2012). Teacher-centered approaches are common in Vietnam because of the current infrastructure, which includes large class sizes, limited materials including books, and a specific quantitative curriculum that limits the time available for developing new meaning or deeper engagement (Thanh 2010). In addition, philosophical underpinnings based on a Confucian model of society have led to resistance to quick change in student learning goals. For example, teachers always have more knowledge than students according to Confucian beliefs (Thanh 2010). As a result, students should have knowledge banked into their brains rather than engage with the topics and develop their own understanding of the material, likely

leading to subpar learning outcomes. The foundations of Confucian beliefs are in direct contrast with active, collaborative learning, which has its roots in constructivist theory (Davis 1997; Dinter 2009; Ng 2015; Weimer 2013). Confucianism is more focused on the teacher and transmission of knowledge, whereas constructivism emphasizes non-linear knowledge construction and eschews a 'cookbook teaching style' (Fosnot and Perry 2005, 33).

At the same time, Confucian philosophy also encourages collectivism. Within a collectivist orientation, all members of a group have a specific role to play and all outcomes are to benefit the group as a whole (Phuong-Mai, Terlouw, and Pilot 2005). As such, some scholars (Phuong-Mai, Terlouw, and Pilot 2005; Nguyen-Phuong-Mai, Terlouw, and Pilot 2012) make the claim that Asian students from Confucian heritage cultures, including Vietnam, have a propensity towards cooperative and collaborative learning in the classroom, particularly in group work. Incorporating cooperative and collaborative learning have been found to be effective ways to enhance student learning in Vietnamese universities. Cooperative learning, rather than collaborative learning, has been studied in Vietnamese collegiate classrooms (Tran 2014; Tran and Lewis 2012). For example, Tran and Lewis (2012) found that in courses that utilized cooperative learning, students had significantly greater achievement and retention measures than students in the lecture-based group. In addition, students in the learner-centered class had increased peer interaction and more positive attitudes towards learning.

Similarly, Tran (2014) found that cooperative learning was beneficial when conducting a similar project with two groups of primary education students in a psychology course at An Giang University in Vietnam. Students who were in the 'learning together' group had higher achievement and retention by engaging in group work, presenting class projects, and were given learning outcomes by the instructor. Findings from this study indicated 'Vietnamese students are highly adaptive in accommodating to a Western style of learning' (Tran 2014, 137). Thus, student-centered teaching and learning has the potential to positively influence Vietnamese higher education.

Conceptual framework

For the purposes of this paper, student-centered teaching and learning is defined as a practice that places the responsibility for learning on the students, both individually and collectively. Forrestal (in Davidson and Major 2014) added five stages to the knowledge building process of the students: engagement, exploration, transformation, presentation, and reflection (23–24). The significance of this type of collaborative learning, in support of

student-centered teaching and learning, is that instructors are relinquishing power and allowing the students to create their own knowledge based on social situations and interactions (Bertelsen, Ying, and Solinap 2013; Thanh, Gillies, and Renshaw 2008; Weimer 2013). Whether this knowledge building is done in a methodically collaborative learning method via in group work or in a flipped classroom, the curriculum is built in a way that allows students to construct their own knowledge rather than merely absorb it.

This knowledge building practice is particularly significant for the re-searched institution, VGU, because of the cultural significance of a more traditionally rote teaching style within Vietnam's Confucius based higher education system, and also the science, technology, engineering and math-ematics (STEM) majors and programs (see **Figure 1**). 'It is more difficult to see how knowledge can be 'socially' constructed in science, math, and en-gineering fields, where there are more 'right' answers and much less dis-agreement about the status of knowledge' (Weimer 2013, 22). And while these STEM fields were some of the first to object to constructivist theories (Choppin 2014; Davis 1997; Weimer 2013), some scholars have identified ways that these theories support the intellectual growth of both students and faculty (Prince 2004).
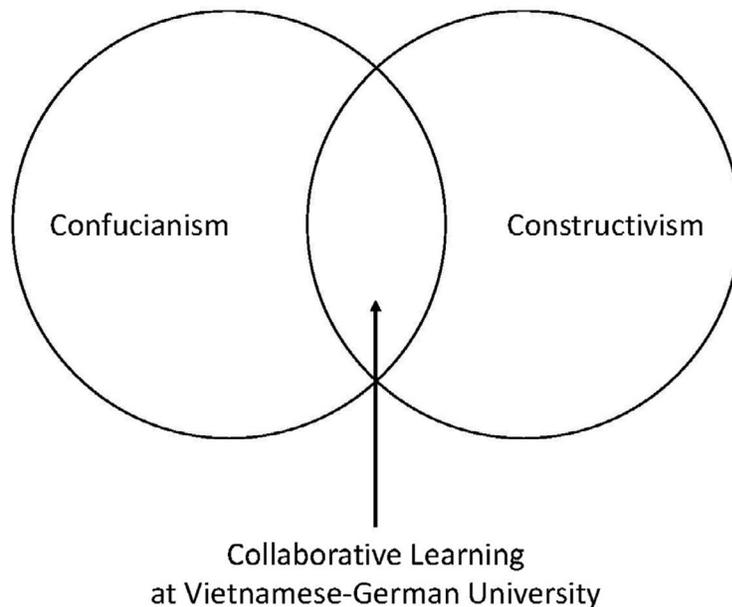

Figure 1. Student-centered teaching and learning at Vietnamese-German University.

Methods

We utilized qualitative research methods by conducting a case study (Yin 2014) at a single site institution. The findings for this paper emerged from a larger study in which we questioned: what are graduate students' academic experiences at Vietnamese-German University? Founded as a public university in 2008, VGU includes collaboration with additional German states beyond the original agreement with HMWK. All instruction and professional communication at VGU is conducted in English (Vietnamese- German University 2017).

VGU has two types of faculty: permanent and 'flying faculty' from German partner universities. Permanent faculty are Vietnamese nationals, and the flying faculty get their name from flying into Vietnam and teaching a course in two weeks. Students attend intensive two-week long classes on one course topic that is typically taught by German faculty. According to current VGU staff, the strategic plan for VGU includes eventually employing primarily German-trained Vietnamese faculty.

VGU had approximately 1,000 students enrolled in 2015 in predominantly technology and engineering majors for undergraduate and graduate students. Six full-time graduate programs were offered at the time of this study, and they include: Mechatronics and Sensor Systems Technology, Sustainable Urban Development, Business Information Systems, Computational Engineering, Traffic and Transport, and Global Production Engineering and Management. Some classes that are taught include 'Intercultural Soft Skills,' 'Quality Management,' and 'Sensor Networks.' Each program has its own distinct program of study that includes four semesters (two years) of coursework, masters thesis, and final exams. Graduates receive degrees that are conferred by the German partner universities associated with their degree program. Currently, VGU issues confirmation certificates of students' graduation, with future plans of VGU conferring joint degrees in collaboration with German universities (Vietnamese-German University 2017).

Participants

Participants were recruited through emails sent by administrative staff at VGU. All eligible participants were instructed to volunteer participation by contacting the first author to schedule in person interviews. Selection of participants was a result of purposeful sampling, which is used when 'the investigator wants to discover, understand, and gain insight and therefore must select a sample from which the most can be learned' (Merriam 2009, 77). The first author travelled to Vietnamese-German University in the spring of

2015 and conducted semi-structured interviews with 24 graduate students. Using semi-structured interviews provided the opportunity to ask follow-up or clarifying questions related to participants' specific and unique experiences in their respective graduate program (Glesne 2010). Participants were able to share thoughts on their specific graduate programs, including feedback on pedagogical practices and their future career goals.

Nine of the participants identified as women and 18 were first year masters students. Participants chose their individual pseudonyms to use throughout the interview and has been used in all reporting of findings. Each interview lasted approximately 60 min and was conducted in English, all of which allowed participants' lived experiences to emerge (Charmaz 2001). As a result of our participants' broad range of interests and experiences, we have been able to collect rich data, which has increased the trustworthiness of the data collected (Glesne 2010).

Data collection and analysis

All interviews were conducted within two weeks in May 2015. Gathered data from each individual interview was organized and transcribed on an ongoing basis, including details on dates, pseudonyms, and any other notes that the first author took during and after the interviews. Although the researcher had some pre-determined interview questions, she allowed for conversation to emerge naturally and asked follow-up questions when appropriate.

Upon return to the United States, the first author collaborated with a team of four additional researchers to conduct coding and analysis. Coding categories were made based on the research questions and conceptual framework. We first started with a start list for deductive coding (Miles, Huberman, and Saldaña 2013) based on this study's interview protocol and conceptual framework. We then searched for broad categories and then developed themes that emerged from the participants' experiences, which were labelled by identifying phrases that related to our themes.

After concluding first cycle coding, we moved on to second cycle coding as a way to refine themes. We organized the first cycle codes by clustering them under common themes or patterns that emerged from the interviews. We conducted second cycle coding as a group, which included rearranging and reorganizing the codes. We continuously refined and reworked the pattern codes until we felt the final codes were representative of the participants' experiences. It was through this process that the findings related to this current study emerged.

Trustworthiness and validity

We have been able to collect rich data and use thick description, which has increased the trustworthiness of the data collected (Glesne 2010). Our findings are based on the raw data that was collected and the exact quotes from our study participants. In addition, we had multiple data sources and multiple researchers, which is an effective strategy for triangulation of data (Merriam 2002). We employed reliability procedures (Creswell 2007), including conducting multiple reviews of transcripts in order to reduce mistakes in participants' narratives of their experiences. Finally, we conferred with international higher education scholars regarding our study topic, the nature of our study, and the process by which we collected our data. We have also shared our preliminary findings with our peers proficient in qualitative research, and as a result, we were able to confirm that our 'tentative interpretations' (Merriam 2002, 31) were appropriate and congruent with the themes that we identified from our findings.

Researcher reflexivity

Reliability often lies within the researcher who is the primary instrument for data collection; thus, our positionality was used as a form of reliability (Merriam 2009). As the researchers, we were aware that reflexivity affected how we made meaning of participants' worldviews. One author, who travelled to VGU to conduct the interviews, identifies as an U.S.-born first-generation Chinese-American whose primary language is English. This author had travelled to Vietnam for a previous study tour while in her doctoral program, and recognizes the privileges and benefits of her U.S. citizenship when conducting this research project. Her position as a U.S.-trained researcher provided access and acceptance by her participants and the research site. She benefitted from the outsider status as a Western scholar, and at the same time, also benefitted as an insider who had prior experience in Vietnam. Very few challenges or tense moments arose in the researcher and participant interactions, as all participants were vocal about their admiration for the U.S. and its education institutions which definitely benefitted the first author. The only barrier at times would be related to language, as participants would sometimes struggle to choose the correct words and/or phrasing to represent their experiences. These situations were mediated by the researcher recalling all of her qualitative interview training and holding back her natural inclination to provide or correct words for the participants. The second author identifies as a U.S.-born Caucasian woman currently living abroad in China. Although living in China for over one year, the second author only has beginning level language skills in Mandarin Chinese. Having spent the

last five-years living abroad (in Western Europe and currently China), she is cognizant of ethnic and cultural differences and recognizes that facets of her experiences and training may frame her viewpoint and bias.

Findings

Students reported effective teaching practices that are based on a student-centered model, specifically through these three findings: the benefits of group work, usefulness of out-of-class collaboration, and the role of faculty in student engagement. Because VGU uses a two-week block model for sub-jects, students found value in collaborative learning in this accelerated time-line, specifically through group work and outside collaboration. In addition, participants found value in what is commonly termed 'flipped classrooms' as a way to navigate language challenges from English-based instruction. Interestingly, many students shared their perspectives on the importance of collaborative learning for their future employment within a global society.

Benefits of group work for learning and employability

When asked about their experiences in the classroom, most participants described multiple aspects of collaborative learning as an effective way for them to understanding the course materials. Specifically, group work was highlighted as the most effective way for them to learn complex topics in class. For example, Cat, from the Traffic and Transport program, described the benefits of group work by stating,

> I think working in group and in some special project when given deeply understanding. If you just teaching us the theory, we pass along my mind and maybe after this cause I can forget this theory easily. But if I did it in special project I can remember longer.

Cat believed that her instructors encouraging group work helps her learn-ing of different theories. Similarly, Jenny also recounted her preference for group work, stating, 'if someone understand about one thing and another don't understand, we would explain again with us.' As illustrated by Cat and Jenny, group work allowed for participants to share thoughts as a way to ask questions and collaboratively develop understanding of theories and ideas.

Group work was also an opportunity for students to participate in active learning by contributing to group projects and discussions. Several partici-pants stated that when working in groups, they are forced to do their own fair share of the work. Fat Ray shared his personal experiences with group

work in his Global Production Engineering and Management (GPEM) program by stating:

> Some of the professor do quite interesting with the group of two, group of three. You know it's the most difficult especially group of two which means you must be doing something. You cannot be the free rider, you cannot wait and see. You must be do something.

In addition to being forced to do their work, participants can also capitalize on the different strengths that each student brings. Jenny spoke about how she depends on her classmates in her GPEM program to help her navigate her classes.

> Because I know that I'm not a perfect student, I also have a lot of weakness and strength. So if I have a strength someone will tell me about that I will improve my strength and if I have a weakness also other people can see that and they also say me and so I also change for my weakness into a strength.

Jenny felt that she was able to be a better student because of the support she received from her classmates. Mushroom, in the Sustainable Urban Development (SUD) program, started out her graduate studies as a self-proclaimed independent learner. However, she realized quickly that she needed to collaborate with her classmates as a way to better understand course topics:

> I learn about the technique about when I communicate with my friend the way I work and the relationship with each other. If I just learn by heart, I just work by myself and I don't connect with everything and that's the pros thing than to work in the group. Because many people in the group have different technique. They sometime think that it good in some aspect and I can learn from them.

   As indicated by multiple participants, group work was the primary way for students to engage in collaborative learning. Interestingly, group work emerged as a component of soft skills that are necessary for future employment. When asked to elaborate, the role of collaborative learning in the classroom was instrumental in gaining the skills necessary to join the workforce, both in Vietnam and in other countries. For example, Jenny was asked about how her classes have prepared her for future employment. She shared:

> I don't really like to work in group work because I think that I work individual more effectively. But when I take the course and have the chance to work in group work to other people, I see that I can learn a lot of best, the good thing from other so that improve me. And when we work

in group work we have also improved the communication skill for each other. Also improved the knowledge and a lot of things.

Engaging with classmates inside the classroom provided opportunities to better understand content necessary for participating in the global workforce. In addition, most participants felt that learning from the German faculty was extremely beneficial because, as indicated by Seven from the Mechatronics and Sensors Technology program, they have 'very high skills' and 'they can work in group or they can work in individual.' According to participants, the benefit of group work translates into improved communication and teamwork for future employment after graduation.

Out-of-class collaborations for deeper learning in English-based coursework

Collaborative learning practices also extended beyond the formal classroom, and participants described the informal nature of their learning beyond structured class time. Students would attend class from 8 AM until 4 PM, and would typically study course materials in the evening. Several participants took advantage of out of class collaboration with their classmates. When asked about how he approached learning complex topics, Bi, a student in Computational Engineering (CE), shared how he and his classmates approach studying after class, stating that they discuss what happened in class because 'sometime I don't understand what teacher talk about' and ask 'what this formula mean and ask my friend how you think about this.' Prior to exams, Bi shared the importance of collaborative studying:

> Week of exam, for the first subject I study here, I learn by myself, my result is not good guess around 60% of this exam. And then I study with my classmate to prepare for exam, I get higher result because I understand, a I might know for example in lecture have ten topic and I understand three and my friend – my classmate understand another three and we get together and we understand six.

Bi's story exemplified the benefits of group work in understanding complex topics within an accelerated timeline in the two-week block course. Several students shared their frustration with the intensity of learning one subject within time constraints. In addition to the time issue, many students shared the challenge of being non-native English speakers learning intricate topics in English from other nonnative English speakers. Thus, outside group work would assist students in trying to understand their instructors' lectures. Joshua shared this example of language challenges in his GPEM classes:

> Yes sometimes many people come to me and ask me what did they said, what did he say and no one understand anything because often at the beginning of the class, the teacher come from different countries. So when we have a new teacher and many people have very different problem and difficulty in learning first one or two days and they come to me and ask what did he say. So I'm very willing to support them and also something I don't understand, I…they go together to the professor to ask for more detail.

As illustrated by Joshua, out-of-class collaboration brought significant benefits to overall learning. Collaborative learning beyond the classroom allowed for better understanding of complex topics as well as a way to navigate English language challenges.

Faculty role in student engagement and flipped classrooms

Overall, participants spoke highly of their German instructors, stating their appreciation for their approach towards teaching. When asked about the benefits of German instructors, Jenny described a typical day in class:

> First of all the lecturer will take the whole block and think about a theory and after that, after every block we have in group work and if there are a lot of questions to answer about what he teach and also exercise to do as a class in the room and we do immediately. When we work in a group try to figure out what the idea he will come around class and see what we are doing now, what we have a problem, what we guessed on and he will give advice.

Jenny appreciated the opportunity to work in a group, but especially valued the instructor's willingness to engage with the groups to ensure that the students were understanding the materials. Joshua agreed with Jenny when asked about what he valued from his German faculty. He stated:

> I think the presentation style. The way they present, they speak, the way they present very attractive. And they get us into the lesson and also for the preparation they send the slide or the lecture before class so that we can read it at home. And some teacher very helpful and they come to the student and they ask, how can I help you or something like that? And they also sit in the table for us to available for us to come to ask them.

Interestingly, several students, similarly to Joshua, recounted their appreciation for instructors sending out class materials the day before. Although participants did not use this terminology, these pedagogical practices were indicative of flipped classrooms. Joshua believed being able to read the

lectures prior to class as extremely beneficial to his learning. Kane, also in GPEM, expressed his appreciation for receiving materials prior to class, stating, 'Teacher provide us a lot of material so we can print it out, look, first we have to look for the content, what lecture will advise us, which will be important things.' He followed up his comment with stating that in class, his instructors will develop groups in which 'we will look to each other' for discussion. This combination allowed for Kane and his classmates to really engage with the materials.

Harry also spoke extensively about the benefits of a flipped classroom. When I asked how his instructors help him learn, he shared the following:

> So then I would say how the professor provide me the material to study and that it give us, for example, the link to the website or the books for us to reading if we want to digging more into the subject or problem they providing us during our lecture. And so that we have the source to know where to start with studying instead of just reviewing our lecture in the morning. And we can also prepare some questions when the, the next morning we come to class and asking him, 'so how does that work' and 'what does it mean?'

Harry, a student in the MST program, spoke positively about this instructor's early communication of materials and topics was helpful. He felt being able to think about the materials before going to class the next day positively impacted his learning, allowing him to ask clarifying questions. Overall, Harry and most participants were very complimentary on the teaching practices from their German instructors.

Discussion and implications

All participants discussed the importance of group work on their learning in the classroom. Group work was often mentioned as being the most effective way to learn complex course materials. For example, Cat and Jenny both spoke about how they were able to better understand what was covered in their classes. Through group discussions, several participants engaged in talk, described by Barnes (2008) and Davison and Major (2014) as one of the most important aspects of a collaborative learning environment. Engaging in conversation during class enabled several participants, such as Mushroom, to learn from 'many people in the group' because they 'have different technique.' This shared aspect of learning, which is counter to the traditional rote teaching style in Vietnam, allowed for deeper engagement with the course content, which could be difficult in their coursework.

Collaborative learning was effective in the technology and engineering courses. Similarly to other studies (Freeman et al. 2014; Street et al. 2015; Tune, Sturek, and Basile 2013), participants felt that active learning in the classroom led to increased learning and success in their graduate students. Jenny shared her appreciation for collaborative and group work in her program, and believed that her classroom experiences were preparing her for the workforce after graduation. Seven also shared the same sentiment, believing that group work translated into improved communication and teamwork for their futures.

All participants spoke English as a second language, and this was an issue that arose in the interviews. Interestingly, participants shared their expectation that English language skills would give them an advantage in the job market due to the global economy. Thus, they were appreciative that their classes were taught in English by German professors, who were considered the best in engineering. Yet despite their desire for English immersion, several participants recognized the challenges of learning STEM topics in English taught by non-native English speakers. Joshua illustrated the benefits of group work in supporting language development. Group work, both in and out of the classroom, assisted him and others in processing through course materials. In doing so, students were able to increase their language proficiency and improve their practice, all of which are necessary components of language acquisition (Long and Porter 1985; Sugino 1994).

Interestingly, flipped classroom pedagogy was not expressly identified by students during their interviews yet elements appeared in many of the students' stories. During the course of reviewing the perceived effectiveness of the teaching and learning implemented at VGU, the authors recognized the key elements present in a flipped classroom: social activities executed in a formal learning space, intervention and feedback by faculty when needed, peer or group-work, and review of lecture materials outside of the classroom (Ng 2015). The participant's assessment of these pedagogical practices highlighted the students' perceived benefits of these activities on their individual learning of complex topics and language, as well as the theoretical benefits of individually-paced review of the material, development of soft-skills, and increased faculty-student interaction.

This study highlighted several practical implications for stakeholders to consider when establishing learner-centered academic plans for international programs. The top priority would be for instructors to facilitate group work in the classroom. Teamwork is considered a critical component in today's global workforce. Strategically creating opportunities for increased collaboration and problem solving skills would benefit students during their graduate career and beyond. The skills honed in the collaborative group work environment include critical thinking and problem solving

skills, interpersonal skills, and taking initiative, which are soft skills highly valued by employers in a global workforce (Pham 2008; Prince 2004; Tran 2013; Trung and Swierczek 2009).

As illustrated by the participants, collaborative learning was effective in understanding complete theory and ideas in class. However, we recommend that instructors consider shifting to cooperative learning, which includes more instructor facilitation of group activities and processes. In doing so, the instructor can be a more engaged participant in the student groups and be able to address any issues or questions that may arise. Instructors would go beyond the teacher role and become a co-creator of knowledge with the rest of the class. In addition, instructor training is critical for the implementation of collaborative and active learning practices in the classroom. Pedagogical training would allow instructors to maximize the potential of deep student learning in technology and engineering courses.

Another implication includes strategically incorporating flipped classrooms. The scholarship on flipped classrooms highlights how this approach effectively increases student's test scores, student engagement and motivation, and promotes better learning outcomes (Bergmann and Sams 2012; Ng 2015). Because of the accelerated timeframe implemented in the two-week block courses offered at VGU and the use of English as the primary mode of instruction, the intentional implementation of flipped classrooms can assist in delivering more course materials in a structured, video lecture format (more indicative of an intentional flipped classroom) for students to review at home and at their own pace. This would allow digestion and dissection of complex topics and materials and any issues (e.g., use of unfamiliar vocabulary or technical jargon) that may arise during the delivery of the lecture. Flipped classrooms would be a significant benefit for students learning primarily in a secondary language and could also be a catalyst for group work outside of the classroom.

We recognize that depending on the context, the adoption of collaborative learning practices can be considered deeply radical. In the social and cultural context of Vietnam, it has received some resistance from Vietnamese faculty (Harman and Bich 2010; Thanh 2010; Tran 2012). However, the merger of pedagogical ideologies from the Western- style German faculty and the institution and students at VGU have created a blended environment that can harness the benefits of collaborative learning. In addition, the findings indicate that graduate students in STEM do find group work and flipped classroom practices valuable as a way to better prepare them for the global workforce.

Limitations and implications for future research

As with all research studies, limitations to this study do exist and include potential misunderstandings due to language difference. All interviews were conducted in English, and all of the participants' were non-native English speakers. To ensure clarity, the interviewer carefully phrased all questions and minimized the use of colloquial terms. Also, questions were repeated and rephrased to assist in participants' understanding. An additional limitation included the representation of only one single institution in Vietnam. Thus, findings may not be representative of transnational campuses nor of Vietnamese higher education.

We recommend several areas of future research that may address the limitations of this study. Because this student-centered research focused in large part on the student perceptions of teaching practices at VGU, it would be beneficial to include faculty perceptions of teaching at a transnational university. Faculty perspectives were not included due to the scope of the project and initial research questions regarding the teaching methods used at VGU. Questions which could be addressed are: is the student-centered teaching a product of necessity or a purposeful decision by curriculum developers? Would the development of a flipped classroom curriculum assist in the success of students on the accelerated two-week block method of instruction at VGU? Also, we recommend getting feedback from faculty on the level of support they are provided to prepare for two week intensive block courses.

An additional recommendation for future research would be to conduct a comparative study at another Vietnamese university. VGU is unique in the fact that it is heavily influenced by German educational perspectives. Thus, a better understanding of graduate students' perspectives of teaching and learning at a Vietnamese university would provide insights on the implementation and execution of pedagogical practices. In addition, we may gain insights on how to blend Vietnamese perspectives on teaching and learning with Western-based practices in order to develop a culturally-relevant and sustainable model for teaching and learning in contemporary Vietnamese higher education institutions.

Conclusion

Despite Vietnam's efforts to move towards a market-based global economy, graduate preparation has fallen short and student-centered practices such as collaborative learning and active teaching are needed to better engage

and support learners in the classroom (Harman and Bich 2010; Trung and Swierczek 2009). As indicated by these contextually-based findings, graduate students at VGU welcome the addition of group work, both in and out of the classroom, as a way to better understand complex course content. In addition, the use of flipped classrooms assist students in better understanding the material, particularly as students learning in a second language. Thus, transnational institutions in Vietnam have a critical role in incorporating student-centered learning in the classrooms, specifically group work and collaborative learning, as a way to maximize student learning. In addition, VGU has the goal of employing German-trained local instructors; therefore, the implications for teaching and learning are critical as VGU moves to training Vietnamese instructors in effective student-centered teaching practices. As a result, graduates may be better prepared to contribute to the global workforce.

The findings from this qualitative study are limited in generalizability as only one single site institution is represented. However, generalizability is never possible nor desired in qualitative research; rather, the findings may be applied to other institutions when taking contextual and environmental factors into consideration. Although this study is limited to one institution, Vietnamese-German University is currently one of several collaborative transnational universities in Vietnam. Current established universities include partnerships with France and Japan, with Russian and U.S. partnerships anticipated in the near future. Thus, the implications from this study could serve as a model for other transnational universities in Vietnam, particularly if additional transnational universities are continually developed and established.

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