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# How Adult Learners Participate in Collaborative Learning within a University Environment

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ABSTRACT

HOW ADULT LEARNERS PARTICIPATE IN COLLABORATIVE
LEARNING WITHIN A UNIVERSITY ENVIRONMENT

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Northern Illinois University, 2020
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Innovation and creativity are the "competitive edges" needed for businesses, government agencies, universities, communities, and private individuals to "stay and feel alive" and compete in our global world. Collaborative learning allows the birth of new kinds of thinking and new perspectives. Regardless of age, gender, race, and academic background, innovation and creativity through collaborative learning allows any individual, group, and organization to "jump start their batteries" and create something new. For this research study, I discovered what collaborative learning is, how it works, and what allows collaborative learning to occur.

In this qualitative study, I explored how a group of local university music students (N=12) utilized collaborative learning during a university music ensemble course. Data were collected primarily through semi-structured one-on-one interviews and classroom observation.

The major emergent themes of this study fall into five categories: (a) collaborative learning solves problems/develops new ideas; (b) informal learning fuels collaborative learning with new ideas; (c) cooperative learning helps others to learn difficult ideas; (d) reflection improves collaborative learning; and (e) group (team) dynamics/leadership creates a welcoming environment. Further analysis of these themes revealed various findings; one example is that learning and working with others allows an individual to gain new ideas and new perspectives.

The findings and conclusions led to recommendations to increase collaborative learning practices and outcomes. My wish is for this research to assist leaders in collaborative learning in the areas of improved innovation, creativity, and educational management.

*Keywords:* Collaborative learning, innovation, informal learning, cooperative learning, reflection, group dynamics/leadership

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HOW ADULT LEARNERS PARTICIPATE IN COLLABORATIVE

LEARNING WITHIN A UNIVERSITY ENVIRONMENT

BY

DENNIS K. AWEN

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Finally, I wish to thank my close friends, Johnny and Colleen Lim and Melissa Subinhyounea Kim, for spiritually and emotionally supporting me in my academic pursuits.

DEDICATION

To my loving parents

Dr. Charles F. Awen and the late Dr. Kim Y. Chung Awen,

my loving older brother, Thomas J. Awen, J.D.,

my loving older cousin, Leonard Chin Moon Chung,

and his loving wife, Woo Suk Yun

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CHAPTER 1

INTRODUCTION

Various collaborations take place every day throughout the world. Noreum Machi, a South Korean traditional folk music troupe, travels to various countries to collaborate and perform with other musicians. The purpose is when different musicians share the same stage, they blend and perform together, and they produce unique sounds (Murthy, 2020). As another example, Bamboo Detroit, a co-working space located in Detroit, Michigan, allows various small business owners to connect and collaborate with each other and allows the cultivation and growth of new ideas and new companies (Detroitisit, 2020). On a larger scale, in northern Osaka, Japan, Nakanoshima 4-intersection is a two- building complex dubbed the "International Center for Future Medicine." The center will unite hospitals, research, clinical trials, and medical facilities, to pursue breakthroughs and innovation in various markets (Japan Brand Voice, 2019).

In order for such mentioned collaborations to successfully occur, adult learners must engage in various kinds of learning, such as collaborative learning. Collaborative learning can be described as a process in which student learners gather together to learn new information, ideas, or skills, and then subsequently create something new with those ideas and information. Such activities of intellectual processing that include constructing meaning or creating new things, and they are crucial to learning (Smith & MacGregor, 1992).

Collaborative learning is widely found extensively in university classrooms and workplaces. Collaborative problem-solving (a form of collaborative learning) requires team members to establish and maintain a shared understanding of the situation they are facing and

any problems they have identified. Members must maintain communication to help each other understand who knows what and what expertise should be applied to any problem (Fiore, 2019).

This study examines how collaborative learning is used and practiced by a group of students participating in a music ensemble at a Midwestern university music outreach program. It is thought that collaborative learning might be a more effective method for teaching and learning (as opposed to the traditional lecture method), as well as for creating new and innovative musical solutions, especially when dealing with difficult learning concepts and involving students who lack the necessary background to understand these concepts.

Chapter 1 provides a brief background and introduction to collaborative learning. This chapter discusses: (1) the traditional lecture method vs. collaborative learning method; (2) the flipped classroom, a collaborative learning method; and (3) technology and collaborative learning. This chapter also discusses the research problem, the research purpose, the research questions, the research design overview, the rationale, and the significance of the research study.

## Traditional Lecture Method vs. Collaborative Learning Method

The traditional lecture method has been a popular way of teaching, but it has certain limitations, especially for adult learners looking for creative solutions. Traditional lectures are instructor centered; the faculty talks, and the students just listen. Lectures are organized in an outline format and are taught in a question-answer format between the instructor and individual students. Students do not work in cooperative groups during a lecture (Ebert-May, Brewer, & Allred, 1997). The lecture sees the instructor as the "sage on the stage" (Ali, 2011). The lecture format is a direct reproduction of information laid out by the instructor. The lecturer has maximum control over the flow of information (Omelicheva & Avedeyeva, 2008). A traditional

lecture using a traditional classroom with numerous desks facing the front can stifle creativity (Drinks, 2020).

Collaborative learning has a number of benefits. Students learn best when they are not passive recipients of learning content, but when they are actively involved in their own learning. With collaborative learning, teachers and students are able to create and construct knowledge together. This makes the classroom more lively, engaging, and democratic, turning the space into a better environment for learning (Pierce, 2015).

In order to find creative solutions, students should enable themselves to create their own study or workspace environment. They can choose their spaces for studying and brainstorming, arrange the set-ups for desks, cubicles, or bean bags, and utilize resources, such as digital whiteboards and refreshments. The surroundings should be transformed into an activity-filled space that promotes learning, research, and creativity. For example, one medical school library featured a café, a 3D virtual model of a cadaver, collaboration rooms equipped with digital whiteboard tables and walls, and quiet areas for individual study. The medical school adopted and catered to a variety of learning styles while best using the space to meet students' needs (Anderson, October 7, 2019).

## The Flipped Classroom, A Collaborative Learning Method

The "flipped classroom" model, is a form of collaborative learning that has become increasingly popular at colleges and universities across the country. The model rearranges face-to-face instruction for professors and students, creating a more efficient and enriching use of class time, such as active, collaborative learning and increased interaction between instructors and students (Hart, 2014).

The pre-class component of the flipped classroom consists of a textbook reading assignment and viewing a video lecture that are generated from slide presentations. Experience shows that pre-class videos are most effective when they are brief and contain engaging elements, such as animations or embedded video clips that present information in a non-lecture style, or mini tutorials that require the student to do something involving pencil and paper. Illustrations are generally much more memorable than paragraphs of text. Students view the pre-class video presentation on laptop computers or mobile devices, such as tablets or smart phones (Courtney, 2016).

A typical flipped class period has students work on exercises in class that would allow them to practice the relevant concepts and to develop critical thinking skills by applying those concepts to increasingly more complex questions. Collaborative learning is often viewed as being more effective for many students than isolated learning. The class is encouraged to work in groups to complete the activities while the professor circulates among the groups to answer questions and provide feedback (Courtney, 2016).

## Technology and Collaborative Learning

Various technologies are changing the ways students learn. Computing, the Internet, mobile devices, and video have transformed education. Video technology has allowed the flipped learning approach to be used more frequently. Universities and schools look for small group collaboration tools that include interactive displays and screen-sharing technologies that support BYOD (Bring Your Own Mobile Device; Mitchell, 2020). Interactive whiteboards and smartboards are great tools that can explain ideas visually and can make teaching and learning experiences collaborative (Tah, 2020).

Mobile devices (e.g., smart phones, tablets, and laptops) offer university students flexibility in terms of when and where they study. Students can access their online education portals anywhere via mobile devices (Armitage, 2015).

Students can also use their mobile devices for collaboration in the classroom. Technology allows students to wirelessly connect multiple or even unlimited users via mobile devices for problem-based learning, working together in teams, and sharing what they're learning with peers and professors. For example, to encourage brainstorming, one classroom in the Indiana University's Media School's featured a strategically placed glass whiteboard; after students collaborated on the board, they took pictures of their work with their mobile devices and shared the photos wirelessly on an interactive video wall. The video wall was installed with a full glass overlay, so students and instructors could manipulate and interact with the displayed content (Johnston, 2016).

Technology enables numerous opportunities for students to learn in addition to use mobile devices and access online education. Mobile apps also provide help to students in university classes, such as organic chemistry. Certain mobile apps allow students to access to course discussion boards. Users are prompted to utilize the discussion board to think about specific transformations together, meaning that a solution is proposed by a group rather than by an individual. Mobile apps make it easy for any user to join a conversation or current topic in the community (Sievertsen & Carreira, 2018).

## Research Problem

Many university students will graduate from their universities and work in private businesses, hospitals, universities, and other organizations locally, nationally, and abroad. By

2022, businesses will require a proactive and inventive strategy to help the 54 percent of the workforce that will require upskilling or reskilling (Kang, 2019). Many university graduates will encounter collaborative learning in their workplaces because collaborative learning opportunities foster better employee relationships by encouraging teams to communicate and problem-solve together and to view each other as valuable resources. Everyone at every age can benefit from collaborative learning, and companies should search for ways to foster an environment that encourages their employees to identify new trends and skills in their industries for opportunities to learn and innovate together (BasuMallick, 2019).

In order to understand and discover how university students engage and participate in collaborative learning and creativity and innovation projects that results in skills they will take to their future work places, I chose to do my research on a group of university music students who participate in a university music ensemble. The music students included university music majors and students in a university community outreach program that allows individuals to participate in a music ensemble even though some participants have little or no music background. I studied how they interacted with each other while learning new musical concepts and engaging in collaborative learning.

A problem addressed by this research study was a gap in knowledge regarding the experiences surrounding the university music students and theories of collaborative learning. By conducting this research, I hoped to answer many questions that can contribute to narrowing this gap.

Research Purpose

The purpose of this study was to explore collaborative learning that entails learning toward performance goals. Specifically, this research investigated collaborative learning among university music students as they experience learning towards performance. This study discovered data on how university music students can improve their success through better informed learning and performance practices.

Research Questions

1. According to the participants, what are the benefits of collaborative learning?

2. How does collaborative learning contribute to adult learners' experiences in the classroom?

3. What significant knowledge and experiences do adult learners bring to collaborative learning?

Research Design Overview

The research methodology was a qualitative study of research participants attending a university school of music (USM) and was designed to examine how USM students utilized collaborative learning for knowledge-building and performance. This study also used a phenomenological qualitative research approach, in which the goal was to describe a lived experience of a phenomenon (e.g., collaborative learning; Waters, 2017).

This research study utilized semi-structured, one-on-one, in-person interviews, classroom observations, team observations, and field note data, as multiple data sources that provided a rich understanding of the phenomena. Triangulation was used to corroborate evidence from different individuals (e.g., participants) and types of data (e.g., observational field notes and interviews). This method ensured that the study was accurate because the information draws on multiple

sources of information, individuals, and processes. It encouraged the researcher to develop a report that was both as accurate and credible as possible (Creswell, 2012).

## Rationale and Significance

The rationale for this study is that university students will someday graduate and work for organizations (e.g., private businesses, non-profit organizations, governments, universities, etc.) where these organizational structures and cultures are at the flipping point of change, as enterprises are challenged to create a technically savvy, culturally diverse, and agile workforce. To create organizational agility, enterprises need an adaptive workforce, strong technical and engineering talent, and multi-disciplinary teams. Business and information technology (IT) teams must work together in constant collaboration (Birje, 2019).

Driven by continuously changing technology, customer behavior, and market conditions, the business culture is always changing. In order to stay current, business leaders must embrace a culture of continuous learning and development to ensure that their workforces are equipped to adapt at a fast pace. While employees should be encouraged and supported to take charge of their own professional development, community-focused and collaborative learning experiences can be invaluable for promoting a culture of learning (Jones, 2019).

This new way of working calls for new technologies and ways of establishing connections among colleagues. Collaboration tools, such as Google Drive and Slack are as essential to success as the coffee machine and copier. These tools connect remote employees to each other and their in-office counterparts. They increase productivity, reduce costs, and even increase the return on investment (ROI). Collaboration tools also help companies maintain a strong culture in the absence of physical proximity (Anderson, September 18, 2019).

It is hoped that this research study provides beneficial insights regarding collaborative learning. Results of this study can help students and instructors in all academic disciplines to improve individual and group learning performance. The findings of this research can be of interest to those scholars in the fields of adult and higher education, business administration, organizational learning, and counseling, and they can contribute to expanding the knowledge on learning and performance in the important areas of collaborative learning. This qualitative study will add to the literature as I research collaborative learning in a university music class at a Midwestern university. The research may also allow leaders and managers to achieve improved management for their respective organizations.

Chapter Summary

This study examines how collaborative learning is used and practiced by a group of students participating in music ensemble at a Midwestern university music outreach program. It is thought that collaborative learning might be a more effective method for teaching and learning (as opposed to the traditional lecture method), as well as for creating new and innovative musical solutions, especially when dealing with difficult learning concepts and involving students who lack the necessary background to understand these concepts.

The traditional lecture method has been a popular way of teaching, but it has certain limitations especially when adult learners are looking for creative solutions. Traditional lectures are instructor centered; the faculty talks, and the students just listen (Ebert-May et al., 1997).

Collaborative learning has a number of benefits. Many students learn best when they are not passive recipients of learning content, but when they are actively involved in their own learning (Pierce, 2015). In order to find creative solutions, students should also enable

themselves to create their own study or workspace environment. They can choose spaces for study and brainstorming, arrange set-ups for desks, cubicles, or bean bags, and utilize resources such as digital whiteboards and refreshments (Anderson, October 7, 2019).

Various technologies are changing the ways students learn. Computing, the Internet, mobile devices, and video have transformed education. Video technology has allowed the flipped learning approach to be used more frequently (Mitchell, 2020).

A typical flipped class period is to have students work exercises in class that would allow them to practice concepts and develop critical thinking skills by applying those concepts to increasingly more complex questions. Collaborative learning is often viewed as being more effective for many students than isolated learning. The class is encouraged to work in groups to complete the activities while the professor circulates among the groups to answer questions and provide feedback (Courtney, 2016).

Students can also use their mobile devices for collaboration in the classroom. Technology is allowing students to wirelessly connect multiple or even unlimited users via mobile devices for problem-based learning, working together in teams, and sharing what they're learning with peers and professors (Johnston, 2016).

Many university graduates will encounter collaborative learning in their workplaces because collaborative learning encourages teams to communicate and problem-solve together. In order to understand and discover how university students engage and participate in collaborative learning and creativity and innovation projects, I chose to do my research on a group of university music students. A problem addressed by this research study was a gap in knowledge regarding the experiences surrounding the university music students and theories of collaborative learning. The research questions include:

1. According to the participants, what are the benefits of collaborative learning?

2. How does collaborative learning contribute to adult learners' experiences in the classroom?

3. What significant knowledge and experiences do adult learners bring to collaborative learning?

The research design was a qualitative study of research participants attending a university of school of music (USM) and was designed to examine the USM students' sample that utilizes collaborative learning for knowledge-building and performance. This study also used a phenomenological qualitative research approach, in which the goal was to describe a lived experience of a phenomenon (e.g., collaborative learning; Waters, 2017).

The rationale for this study is that university students will someday graduate and work for organizations (e.g., private businesses, non-profit organizations, governments, universities, etc.) where these organizational structures and cultures are at the flipping point of change, as enterprises are challenged to create a technically savvy, culturally diverse, and agile workforce.

CHAPTER 2

LITERATURE REVIEW

Collaborative learning is an important learning theory because it provides an alternative way of learning to adult learners besides the traditional lecture method. Collaborative learning also has its applications in innovation and creative projects, since adult learners work in groups or teams, and they provide a rich source of personal and professional experiences and ideas. Working together with others helps not only one adult learner, but it allows others to be exposed to many perspectives, gain a deeper understanding on new learning material, and construct new knowledge.

Chapter 2 is the literature review for this research study, in which it provides a background of the various theories that support this study. The major theories of this study are: (1) *collaborative learning*, (2) *informal learning*, (3) *cooperative learning*, (4) *reflection*, and (5) *group(team)dynamics/leadership*. Collaborative learning is the main core of this study, but other theories support this study as well. Finally, the conceptual framework of this study is provided at the end of this chapter.

Collaborative Learning

Collaborative learning has a multi-disciplinary approach to understand how adult learners collaborate and learn with each other. This section provides a brief background and introduction of collaborative learning, which includes: (1*) defining collaborative learning*, (2) *collaborative learning and experiential learning*, (3) *collaborative learning and social constructivism*, (4) *collaborative learning and problem-based learning*, (5) *collaborative learning and creativity*,

and (6) *working alone versus working with others*. Collaborative learning allows adult learners to gain a deeper understanding from different perspectives and create new knowledge with the help of other group members.

<u>Defining Collaborative Learning</u>

Collaborative learning is the process where each group member contributes his or her own personal experience, information, perspective, insight, skills, and attitudes with the purpose of improving the learning outcomes of others. The group's collective learning eventually becomes possessed by each individual. Collaborative learning occurs when small groups of students help each other to learn. It is usually done in an informal, unstructured, and loosely monitored way. Collaborative learning programs do not have to eliminate lecturing, but they can even be built around lectures (Klemm, 1994).

Collaborative learning is where two or more people learn something together, such as capitalizing on one another's resources and asking one another for information. Collaboration and the sharing of information can make learning more efficient (Blum, Haghtalab, Procaccia, & Qiao, 2017). It is also sharing knowledge and experiences, in which students teach and learn from each other and develop interdependence. Students are able to efficiently obtain a huge amount of information, which is useful to students in generating new ideas for effective learning (Awedh, Mueen, Zafar, & Manzoor, 2014).

Collaborative learning addresses how students learn and how they construct knowledge together. In the classroom, the various approaches of social learning suggest cooperative contact among a small group of peers, wherein the group either sinks or swims together. Collaborative learning contributes to innovation because it relies on teamwork and close collaboration.

Knowledge is a major innovation generator; trying new ideas and updating old assumptions is a powerful engine for social and economic progress (Adams & Hamm, 2019).

Collaborative activities are based on the principles that: (1) the learner or student is the primary focus of learning; (2) interaction and doing activities are of primary importance; and (3) working in groups is an important part of learning. Collaborative learning can occur in peer-to-peer interactions. Peer learning is a type of collaborative learning that involves students working in pairs or small groups to discuss concepts or find solutions to problems. This process occurs in a class session after students are introduced to course material through readings or videos before class and/or through instructor lectures. Many instructors found that through peer instruction, students teach others by addressing misunderstandings and clarifying misconceptions (Chandra, 2015). The interaction among students also generates extra activities (such as, explanation, disagreement, or mutual regulation).

There are numerous activities which are performed collaboratively by the learners and those are: (1) role play, (2) debates, (3) group projects, (4) summary writing, (5) case studies, and (6) preparation of a group or pair presentation, etc. The main objective of collaborative learning is that students are involved in classroom activities. If these activities are done well, they can create a valuable source of motivation, critical thinking skills, and active learning while the students learn to manipulate classroom material into their own working knowledge (Paul, 2016).  Research has shown that the "interactive mode" of collaborative learning refers to instructional settings that allow a group of learners to jointly develop knowledge and understanding beyond the information contained in given materials. Collaborative groups should provide and receive feedback, ask each other questions, propose arguments and rebuttals, and elaborate on each other's ideas. Incorporating other individuals' contributions leads to the

potential of creating new knowledge that neither individuals could have generated by working alone (Menekse & Chi, 2018).

Collaborative learning suggests a way of dealing with people, which respects and highlights group members' abilities and contributions. It allows a sharing of authority and acceptance and responsibility among group members for the groups' actions. The underlying principle of collaborative learning is based on consensus building through cooperation by group members in contrast to competition. Key elements of collaborative learning include: (1) positive interdependence; (2) considerable interaction; (3) individual accountability; (4) social skills; and (5) group processing (Laal & Laal, 2012).

Kuo, Belland, and Kuo (2017) conducted research on students participating in a collaborative blog community. Students in the research study were enrolled in instructional design courses from a southern university in the United States. The group project was designed to help students learn in a collaborative learning environment that used blogging in their coursework. Many students enjoyed the group work and found the collaborative learning to be enjoyable, effective, educational, and interesting. Researchers discovered that through group work, students engaged in interaction, information sharing, and idea negotiation to achieve consensus. Idea exchange through discussion and communication helped eliminate disagreements among classmates or overcome any challenges during collaborative group work. Feedback or resources shared from others in the group made groupwork easier and also promoted idea formation through brainstorming. Another example of collaborative learning consisted of students forming groups while attending business management lectures and workshops on financial analysis. Students participated in group work and reported they had gained valuable experience as their ability to collaborate developed, and their problem-solving

skills increased. Furthermore, their level of disagreement was minimal (Cawkwell, Talbot, & Boylan, 2016).

Along with group work, collaborative learning utilizes technology. Students use mobile devices (e.g., smartphone, computer, tablet) and other forms of technology in their collaborative learning. Mobile learning enhances collaboration skills when students interact well with other students and exchange ideas to create a final work assigned by a teacher or instructor. Collaborative learning activities take place between mobile learning and classroom learning allowing students to use mobile devices for participating in class lessons and activities (Laisema, 2018).

Collaborative learning can be also found outside the formal classroom. Researchers conducted a study on residents living within a farming community in Thailand. The residents participated in a community garden and helped each other to take care of the garden. Members were allowed to take vegetables from the garden, but they were expected to donate by leaving some money in a box for garden maintenance purposes. Some community members cooked and ate together. The garden became a public space for community members to work, meet, chat, and share with others. The community garden was a space for the members to learn by doing, and it became a place for exercise and relaxation (Boossabong, 2018).

### Collaborative Learning and Experiential Learning

Experiential learning is important in collaborative learning. The Lewinian Experiential Learning Model (Figure 1) is a four-stage cycle of experiential learning. The theory emphasizes here-and-now concrete experience, which validates and tests abstract concepts. Immediate personal experience is the focal point for learning, which gives personal meaning to abstract

concepts. Information feedback provides the basis for continuous process of goal-directed action

and evaluation of the consequences of that action (Kolb, 1984).
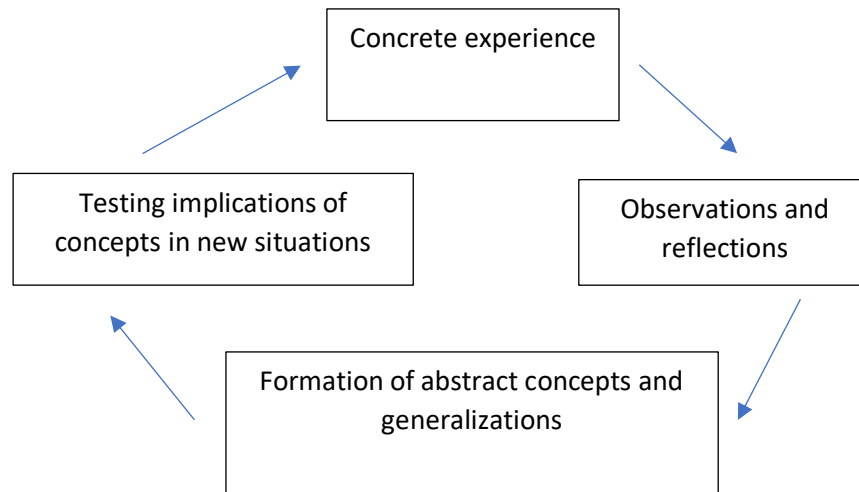


Figure 1. The Lewinian experiential learning model (Kolb, 1984).

To illustrate this experiential learning model, a research study focused on engineering

students studying a gearbox in a classroom. Students experienced what a gearbox looks like, how

it works, the main geometrical features, and how these features can be associated with theories

they learned in the classroom. Exploration of the gearbox model was the "concrete experience"

stage in the experiential learning cycle. This experience formed the "observation and reflections"

stage. When conducting a group discussion and completing the first project report on the gearbox

exploration, the students reflected on what they observed from the gearbox model, and to allow

them to think about ways to improve on the next phase of the project or the "formation of

abstract concepts and generalizations." It helped the engineering students to design their own

gearbox in phase 2. The previous experience, thought, and reflection were followed by a new

attempt, such as design and improvement or "testing of implications and concepts in new situations" (Li, Ochsner, & Hall, 2019).

Experiential learning helps creativity and critical thinking. Collaboration helps students to develop their critical thinking when trying to find the best solution. Students can be more interactive with their group members during the process of thinking. Students with diverse backgrounds can also stimulate others' creative thinking during collaborative work. When students share their ideas in groups, each group member is enriched with more information. In summary, creativity and critical thinking take place as students observe and experience things, and when they collaborate with each other (Marpaung & Hambandima, 2018).

### Collaborative Learning and Social Constructivism

Collaborative learning is related to social constructivism. Social constructivism involves knowledge being constructed by the group. Individual constructs are transformed due to group interactions. The social context in which meaning is created is an essential contributor to the process of constructing knowledge (Doubleday et al., 2015). The group's ability to construct meaning depends upon a combination of (1) prior knowledge, (2) ideas growing out of combined knowledge, and (3) discussion stimulated by collective idea building and modification of these ideas (Doubleday et al., 2015).

Social constructivism is activated in education when learners are encouraged to interact and participate in learning to construct, transfer, and share knowledge. Discussions help improve students' abilities to test their ideas, develop collaborative skills, improve problem-solving skills, and expand their understanding of what they are learning (Thinley, Reye, & Geva, 2014). In constructivism, knowledge is not seen as a commodity to be transferred from expert to learner,

but rather as a body to be pieced together through an active process of involvement and interaction with the environment (Schcolnik, Kol, & Abarbanel, 2006).

Because learning is an active process of knowledge construction, the learning environment should not impart knowledge but should rather support the learner's construction of knowledge. Learners should be exposed to materials, experiences, and situations from which they can inductively build their own knowledge. Because dialogue, discussion, and interchange affect learning, teachers should allow for activities that require dialogue and exchanges of ideas (Schcolnik et al., 2006). Construction of knowledge leads to authentic learner authorship and ownership, from which the learner emerges empowered. According to constructivism, educational courses should support a learner-centered, task-based curriculum that encourages knowledge construction (Schcolnik et al., 2006).

Learning is an active, constructive process rather than the process of knowledge acquisition. Teaching involves supporting the learner's constructive processing of understanding, rather than delivering the information to the learner. In constructivism, teaching is a learning-teaching concept rather than a teaching-learning concept. The learner comes first, and teacher comes second, so that the learner is the center of learning (Kim, 2005). Learning is not only a transfer of knowledge from one individual to another; it is a transformational process in which new ideas, experiences, and personal judgments are integrated into one's new knowledge (Mukan, Fuchlya, & Ihnatiuk, 2017).

Social constructivism is a highly effective method of teaching from which students can benefit, since collaboration and social interaction are incorporated. Social constructivism is based on the social interactions of students in the classroom and personal critical thinking processes (Powell & Kalina, 2009). Social interaction and culturally organized activities are

necessary in the classroom for proper psychological development. People who have more knowledge than the learner must be involved in these activities. The social constructivist environment includes activities, in which students experience a certain level of understanding and seek assistance to reach the next level of understanding (Powell & Kalina, 2009). Allowing students to gain knowledge individually also helps the learning process as in question-and-answer periods after every significant topic, discussion, or dialogue (Powell & Kalina, 2009).

The social intersections between people, the interactions that involve sharing, comparing, and debating among learners and mentors (teachers) shape individuals' learning and development (Ekpenyong & Edokpolor, 2016). Learners actively construct their own knowledge based on their past personal experiences. The use of interactive problem-based learning is an example of a constructivist approach. Problem-based learning allows students to apply their existing knowledge to real-world situations and applications in various subjects (Ekpenyong & Edokpolor, 2016). For example, groups of business students in a business education class may discuss problems related to the launching and growing of business ventures and what needs to be done to address them. Business educators can encourage students to take chances and can give them opportunities to experiment on their own and to accept responsibility for their own learning. Greater emphasis is placed on creating a learning environment that encourages students to interact with one another (Ekpenyong & Edokpolor, 2016).

Social constructivism involves the following principles: (1) creating communities characterized by inclusiveness, equity and caring, and intellectual achievement; (2) giving a high priority to knowledge building and understanding through inquiry; (3) encouraging collaboration between teacher and students, as well as among students, so knowledge is co-constructed; (4) broadening participants' interests and recognizing and valuing the contribution of experts beyond

the classroom; and (5) providing for growth and self-determination of each individual and for the development of the classroom community as a whole (Wells, 2002).

One research study examined the use of social constructivism in learning in an accounting class. The classroom involved all students in a class activity, such as simultaneous interaction. Students were paired in teams, and the teams were able to solve accounting problems together. Social scaffolding is where assistance is initially provided, and then it is gradually cut back. The cooperative learning structure fostered teamwork, since students depended on each other to learn the material (Pereira & Sithole, 2019).

The constructivist approach in the accounting class involved five learning theories: First, collaborative learning: learners were given the opportunity to work together and develop their knowledge (e.g., balancing accounts). Second, inquiry-based learning: the teacher or instructor was not responsible for showing and telling learners how accounts are balanced. Instead, learners discovered for themselves through experimentation and trial and error, by balancing the accounts. Third, reflection: learners tried things out on their own, realized their mistakes, corrected those mistakes, and took note of what they had done. This gave them the opportunity to reflect on their actions and to agree as a group on what could be viewed as their own understanding of balancing accounts. Fourth, active learning: learners interacted and worked together to determine what was involved in balancing of accounts. This required them to analyze and interpret ledger entries and balances in order to come up with a basic understanding of account balancing. Fifth and finally, authentic learning: learners were exposed to real-life experiences when they tried things, failed, corrected their own mistakes and reattempted (Pereira & Sithole, 2019).

Collaborative Learning and Problem-Based Learning

Collaborative learning uses problem-based learning, which allows a student to take on a research problem for learning in the areas, subjects, or disciplines appropriate for the student. In doing this, the student further develops his or her problem-solving skills. This method of learning has two educational goals: (1) the acquisition of an integrated body of knowledge related to the problem; and (2) the development or application of problem-solving skills. This method is also ideally suited for student-centered and individualized learning (Barrows & Tamblyn, 1980).

During the 1980s and 1990s, problem-based learning was adopted in medical schools and became an accepted instructional method in North America and Europe (Savery, 2006). It is an instructional learner-centered approach that empowers learners to conduct research, integrate theory and practice, and apply knowledge and skills to develop a solution to a defined problem. Critical to the success of this approach is the selection of ill-structured problems and a tutor who guides the learning process and conducts a briefing at the end of the learning experience (Savery, 2006).

Problem-based learning may implicate individual and group activities, stimulating and inciting curiosity, motivation, self-guided study, and personal and group reflection. The problem which serves as the initial source of learning may be furnished by the instructor or proposed by the students. Being a problem based on real life, the students will be motivated to provide an accurate analysis and definition, in understanding its nature, and the necessity for solving the problem. Problem-based learning creates a learning environment in which the instructor plays the role of coach. He or she guides the students in the activity of problem investigation/research

and facilitates the students' learning and advancing toward higher levels of understanding (Gorghiu, Draghicescu, Cristea, Petrescu, & Gorghiu, 2015).

Problem-based learning allows students to work in groups. Students typically pause to reflect on the research data they have collected, generate questions about that data, and hypothesize about underlying mechanisms that might help explain it. The students identify concepts they need to learn more about to solve the problem. The students then divide and independently research the learning issues they have identified. They then regroup to share what they individually studied, reconsider their hypothesis and/or generate a new hypothesis based on their new learning. When completing their tasks, the students reflect on the problem in order to abstract the lessons learned (Hmelo-Silver & Eberbach, 2012).

Group learning facilitates not only the acquisition of knowledge but also several other attributes, such as communication skills, teamwork, problem solving, and respect for others. Problem-based learning can be thought as a small group teaching method that combines the acquisition of knowledge with the development of skills and attitudes (Wood, 2005).

<p align="center">Collaborative Learning and Creativity</p>

Collaborative learning is involved with creative thinking. Creativity involves a collaborative process to generate new ideas through the results of social processes taking into account both group interaction and efficiency in group work (Astutik, Nur, & Susantini, 2016). It can also be thought of as raw ideas, new ways of looking at things, new methods, or products that possess value (Kushwaha & Tewari, 2019). Guilford (1973) states that the steps of the creative process are: (1) preparation or the acquisition of skills, techniques, and information; (2) concentrated effort of finding a solution; (3) withdrawal from the problem; (4) insight or

illumination; and (5) verification, evaluation, and elaboration. Creative problem-solving is a problem-centered approach to learning for students that integrates collaborative learning, problem-solving skills, dialogic interaction, and the social construction of meaning through group processes (Samson, 2015).

The collaboration process contributes to creative thinking by various interactions. Participants share information on new ideas. The second stage includes collaborative activity, in which students in groups discuss and select the most interesting suggestions. Students also plan their work, organize the discussions, and make decisions. The third and final stage of the process becomes the stage of reflection results and process. The students provide feedback and reflection on their work (Fedorinova, Pozdeeva, & Solonenko, 2018).

The use of creative thinking strategies is important in solving problems. One creative thinking strategy includes: (1) a clear statement of the problem (i.e., problems defined and recorded); (2) tentative problem solutions (i.e., a record of the process in which creative thinking strategies are used for the generation of ideas); (3) selection and assessment of tentative solutions; (4) testing of hypotheses; (5) reviews and evaluations; and (6) generation of a complete record of problem solving (details of the creative processes used in each problem solving; Truran, 2016).

Small groups and teams have an impact on collaborative learning and creativity. Pun (2012) researched collaborative learning and creativity on students assigned to work in small groups within a community of learners. Nearly all of them shared ideas, did things together, and helped one another for the benefit of the group. A majority of them learned from one another's talent and their creative thinking skills and interests were enhanced. The majority also expressed self-satisfaction and accomplishment in their group work, made new friends, had fun, and

enjoyed working in groups. In another example, Karakas, Manisaligil, and Sarigollu (2015) performed research on collaborative settings and teamwork. The design of the class enabled students to experiment with collaborative skills. Collaborative opportunities and projects were set up for participants where they could work as a team. Team members reviewed proposals and discussed ideas on how to make their work more insightful, interactive, enjoyable, and memorable. The team used a mix of guest speakers, videos, exercises, games, or discussion related to their group work. Teamwork also means interdependence and mutual trust are achieved through active participation (interactive environment), sharing of ideas (meaningful engagement) and individual contribution, which are the key features of collaborative learning (Ivkovic, 2019).

### Working Alone versus Working with Others

Many reasons have been discussed so far about the advantages of working in groups and collaborative learning, but there are some people who do not like working in groups. Wismath and Orr (2015) discovered that some people prefer to work alone. Certain students felt a strong sense of competition, a sense of independence, a desire to be the first to solve a problem, and the great satisfaction of solving a puzzle by themselves. One student commented about the comfort and reassurance "when solving it on my own" and another spoke of "the feeling of accomplishment I get from it knowing it was all me." Other students talked about being shy and uncomfortable talking to others, or afraid of feeling or being seen as ignorant. Other students described group dynamics: group work can get off-topic too easily; can move too quickly for individuals to keep up and can lead to frustration if one person dominates (Wismath & Orr, 2015).

On the other hand, one student commented about the benefits of working with others.

> Ideally though, I would be able to work alone, but still able to confer with fellow students to gain some inspiration, or to see different strategies they are using, and then apply it to my own work. I like to use a system to solving problems, and group members tend to interfere with my process at the time. However, I do like groups because of the ability to bounce ideas off each other, and to build on them. I guess what I am saying is, I like to process and dissect problems in a group, but the actual solving process I prefer to do myself. There is always the ability to reflect with another student, which for me is crucial in learning to solve, and understanding problems (Wismath & Orr, 2015, pp. 7-8).

Learning occurs in a variety of ways. The next section discusses informal learning and how adult learners learn various ways even outside of a formal education classroom.

## Informal Learning

In addition to collaborative learning, informal learning plays a role in understanding how adult learners learn from each other through non-formal education, such as learning at a workplace, studying with friends at a library, or even at a coffee shop. This section includes: (1) background of informal learning, (2) informal learning spaces, and (3) informal learning and mobile technology. Adult learners learn through various means outside of a formal classroom, and it serves as an alternative way of learning new knowledge from other adult learners.

### Background of Informal Learning

Informal learning is where formal education no longer comprises the majority of our learning. Learning occurs in a variety of other ways, such as communities of practice, personal networks, and through completion of work-related tasks (Siemens, 2005). Informal learning is considered to be self-directed, while students have flexibility in what and how they learn. It is

learning that students undertake without necessarily being asked explicitly to engage in that particular learning (Lai & Smith, 2018).

Another form of informal learning is "free choice learning," which is learning that is guided by the learners' needs and interests. This learning is what people engage in throughout their lives to find out more about what is useful, compelling, or just plain interesting to them. It is intrinsically motivated and largely under the choice and control of the learner. Examples include surfing the Internet, participating in book discussion groups, watching nature documentaries on television, checking out books at the library, and visiting museums and parks with friends and family (Dierking & Falk, 2003).

Free-choice learning occurs during visits to museums, when watching television, reading newspapers, talking with friends, attending plays, etc. It tends to be non-linear, it is personally motivated, and it involves choice on the part of the learner as to when, where, with whom, and what to learn (Falk & Dierking, 2018). One reason, why learners engage in informal learning is that they are interested in acquiring knowledge, a new skill set, or obtaining a credential. People also acquire knowledge from their various social environments through observation of others. Mobile technology via small portable computers, usually a smartphone or tablet, has created new ways for learning to take place (Van Noy, James, & Bedley, 2016).

Narratives and stories are one of the main tools individuals use to make sense of their living experiences in informal learning. Through narratives, humans are able to draw connections between different experiences and develop a clearer understanding of those experiences. Narratives are deeply connected to our understanding of self and identity (Yelich Biniecki & Donley, 2016). Stories are powerful because they engage learners at a deeply human level. They engage our spirit, our imagination, and our heart, and this relationship is complex and holistic.

They evoke other experiences we have had, and those experiences become real again (Clark & Rossiter, 2008). Good questions also often open up a dialogue in which productive learning takes place (Braund & Lelliot, 2017).

Informal learning arises in situations where learning may not be the primary aim of the activity, but it is activated by some anticipated or existing problem situation that requires resolution. Informal learning may occur as a result of activities, such as group problem solving, hypothesis testing, mentoring, and coaching. Although no one officially serves as the trainer or facilitator of these activities, informal learning may involve finding certain individuals who are recognized to have higher insight or competence on a topic. Informal learning may be undertaking by engaging with others or starting some sort of self-initiated study. Most of this learning is unplanned and occurs by chance, naturally, as needed (Manuti, Pastore, Scardigno, Giancaspro, & Morciano, 2015).

Informal learning is organized as: (1) being interactive and embedded in meaningful activity; (2) where guidance is available to learners and their colleagues through social interaction and the structure of activities; (3) talk is conversational, not didactic; (4) it occurs in support of contributing to the activity; and (5) participants hone their existing knowledge and skills, and they also innovate and develop new ideas and skills (Rogoff, Callanan, Gutierrez, & Erickson, 2016).

A student-centered culture of learning consists of the following principles: (1) *learning as a constructive process* or learning process that takes place with individual interpretation and construction of meaning, and occurs either as a result of connecting new experiences with existing knowledge or expanding existing knowledge; (2) *learning as an active process of content* or constructive approaches that assume knowledge cannot be transmitted, but rather

instead, that every learner must recreate knowledge; (3) learning is self-regulated or learners are able to decide for themselves when, what, and how they learn; (4) *learning as a cooperative process* or learning occurs through communication by engaging with others; and (5) *learning content is situational* or learning always occurs within a specific context and is therefore linked with this context (Wulf, 2019).

Informal learning has different characteristics. The "Even Playing Field" refers to student led groups (i.e., musical ensembles), in which the participants are able to collaboratively structure their own learning goals, environments, and activities. The participants feel much more at ease, and they contribute to the overall sense of relaxation and fun to the ensemble. They feel their voices can be heard and respected if they share their input on the structure or operations of the group (Haning, 2019). Another characteristic is that knowledge is not only taught by teachers on specific occasions, but free learning and discovery learning are effective methods to acquire knowledge. The Pareto principle states that only 20% of knowledge in life comes from classroom teaching or work, and 80% of knowledge comes from self-study and communication with others. A final characteristic is that informal learning requires a place to support individual dialogue, cooperation, and sharing (Zhang, 2019).

In one university project, university faculty and student participants in the fields of music, dance, and education, came to collaborate on creating and performing new works. The project involved students and faculty members working together on a voluntary basis (Sefton, 2018). The project also contained elements of informal and formal learning. Some of the activities took place in a school setting, but not in a regular classroom. The performance events and collaborative workshops did not carry the regular and textual practices of formal learning: there was no course outline, no prescribed learning goals, no criteria for success, and no fees for

students or salary for faculty. The activities were flexible and democratically decided upon, and participation was voluntary. Expert collaborator/creators and student collaborator/creators worked together to develop and perform creative works (Sefton, 2018).

Informal learning can occur when students leave home for the first time. For example, for most US students, informal learning is accomplished through living in the university community. Leaving home for college is a rite of passage, a transition from childhood to a more independent lifestyle. Students are responsible for organizing their personal time, space, and activities. They try out new ideas, new methods, and new looks. They must deal with people they disagree with respectfully. Student develop skills in networking and an ability to adjust to change. A student who develops relationships with new colleagues adds to his or her professional contacts and acquires a handful of adult friends. Contacts share interests and experiences. Shared interests develop into respect and affection which, in turn, enlarge common experiences and life spaces (Tetreault, 2015).

Informal learning can take place at the workplace. Many small business owners and managers are likely to learn informally or incidentally. For example, discussions can take place with suppliers and customers and at trade fairs rather than by attending formal training courses. Informal learning can include problem-solving, observing, and working with more experienced co-workers, informal chats, and moving between jobs in the same work organization (Halliday-Wynes & Beddie, 2009).

Communities also provide sources of informal learning. A community-led "social issues" network was created in 2011 by a church leader in a rural community of South Lincolnshire, United Kingdom. The social issues network was created to give local people an opportunity to meet and discuss issues of collective concern to them. Membership consisted of voluntary

organizations, members of the public, public agencies (e.g., National Health Service, police, fire, and rescue), professionals, and community members, in which they created an agenda for discussion, review, and networking. Conversations took place with a small number of community leaders. Many individuals spent their time in creating environments for conservations between community members and with local authorities. Workshops and meetings helped to further facilitate the activities of the City Council to engage groups of residents with its medium and long-term planning (Herron & Mendiwelso-Bendek, 2018).

<u>Informal Learning Spaces</u>

Informal learning is dependent on the place where university students gather. For example, an "informal learning commons" within a library has areas intended for collaboration, including group study rooms, flexible furniture, and large desk computer stations than can accommodate several students working alongside one another (Raish & Feenewald, 2016). This learning space also can be favorite places for students to gather in within a university library. This location is where students might drop in between lectures, but they also often spend a long time studying there, sometimes in overnight sessions. Students will arrange a time with friends and bring books and food. A major factor in choosing where to study is that students want to work alongside other students they know. This reason is related less to group work and is primarily to have companionship and a sense of support from others (Cox, 2018).

Providing students with a convenient, comfortable, and quiet place to learn does not mean providing a silent or anti-social space, but rather a social space focused on learning (Morieson, Murray, Wilson, Clarke, & Lukas, 2018). It is necessary to create spaces belonging to students that are suitable for the range of informal activities they engage in on a university

campus, including private study, group work, socializing, preparing meals, and running events like student-led exhibitions and industry events (Morieson et al., 2018). For example, a large table located in a room with a kitchen becomes a more communal space to chat and eat, as well as to sell tickets to student social events (Morieson et al., 2018).

Informal learning can take place at workplaces, such as in start-up offices. Co-working spaces are a new generation of workspaces that provide flexible, rentable, and cost-effective workspaces for freelancers, entrepreneurs, and small businesses (high-tech, creative, etc.) and also facilitate collaboration, interaction, and networking between their members. Co-working spaces have been developed in cities to encourage collaboration, creativity, idea sharing, mentoring, networking, socializing, and generating new business opportunities for start-up companies and freelancers. Since work has become dependent on knowledge and creativity, the highly creative knowledge work is far more collaborative. Co-working spaces help members find solutions they cannot easily solve themselves (Fuzi, Clifton, & Loudon, 2015). Co-workers also learn new knowledge and to work in a new and different way, by observing other coworkers or through the exchange of information (Costa & Cera, 2019).

Informal learning can also occur at community gathering places. A coffee shop offers an informal place where diverse people come together--in a "neutral" place that is not a regular workplace--where conversations around ideas evolve over a cup of tea or coffee. The atmosphere is relaxed. The coffee shop conversations have served a role in sharing and propagating ideas and in building communities. Discussions are enriching, lively, and supportive (Ryan et al., 2017).

Informal Learning and Mobile Technology

Humans learn together with colleagues, other students, families, and friends. It occurs at the workplace, at home, or during their leisure time. Mobile technologies also afford participation in a connection of locations. Such a connection could include workplaces, university campuses, homes, local study centers, and other physical locations. Learning in these locations occurs among different social groups, such as colleagues at work, the family at home, and other learners at the university or in leisure activities (Jaldemark, 2018).

Mobile devices can also provide students convenient access to learning forums, such as blogs and course-specific chatrooms (Beier, 2019). Lantz-Andersson, Lundin, and Selwyn (2018) also discovered informally developed online teacher communities, served as a source of sharing new ideas and provided a forum of emotional and professional support. Mobile computing devices to allow students learn in a variety of ways, such as recording videos or voice memos, creating virtual history sites, and texting messages and e-mails. These variety of ways encourage students to communicate and collaborate about course content, and to discuss the course content in class sessions (Atas & Celik, 2019).

In one study, researchers discovered that students used social media through mobile devices for a number of purposes: (1) managing group work (finding partners, forming groups, sharing tasks); (2) generating ideas; (3) communicating with peers and teachers (group discussion, asking questions, receiving feedback); (4) documenting and communicating progress; (5) sharing project outcomes, such as presentations; and (6) sharing information, resources, and links (Greenhow& Lewin, 2016). The following section discusses cooperative learning and how adult learners learn together new concepts and ideas.

Cooperative Learning

Cooperative learning allows adult learners to help each other learn new ideas in small groups. This section discusses: (1) *what is cooperative learning*, (2) *the benefits of cooperative learning*, and (3) *cooperative learning and critical thinking skills*. Although an instructor may assist adult learners to learn new material and ideas, adult learners can benefit from learning from each other through cooperative learning.

### What is Cooperative Learning?

The cooperative learning approach involves students actively working and learning together in small groups to accomplish a common goal in a mutually helpful manner (Davidson & Major, 2014). Students seek outcomes beneficial to everyone. They discuss material with each other, help one another understand, and encourage each other to work hard. Individual performance is checked regularly to ensure all students are contribute to the group and learning process (Johnson & Johnson, 1999). Cooperative learning also involves the instructional use of small groups, wherein students work together to maximize their own and each other's learning (Johnson, Johnson, & Smith, 2013). With this method, knowledge is socially constructed by the learner through participatory interaction with other students (Lange, Costley, & Han, 2016).

Cooperative learning is a highly socialized, interactive, and modern kind of communication that involves individual students participating actively in small groups or pairs to exchange their understanding, knowledge, and expertise during their assigned classroom activities. This kind of learning takes place in a socialized and collaborative environment, and every student plays an important role in the group to accomplish the required task. The teacher plays the role of facilitator, an organizer, a helper, and manager of the classroom activities

employing the students as tools of teaching and communication to maximize learning to achieve

the desired goals (Raja, Qureshi, & Albesher, 2017).

Cooperative learning involves: (1) a l*earning process* that leads to the development of

social skills (dialogue, listening, participating, assertiveness, negotiation, and leadership) and a

greater autonomy; (2) *self-regulation*, in which students have an active role in their learning.

They have set goals and have conducted their behavior towards achieving them; (3) *commitment*

*and responsibility*, in which students have been consistent with their share of work and

involvement in the group. They have taken a position of collaboration for the work to be

successful; and (4) *negotiation*, in which students have agreed on many issues and they have

trusted each other (Larraz, Vazquez, & Liesa, 2017).

Johnson, Johnson, and Smith (1991) stated that cooperative learning includes the

following: (1) positive interdependence, where team members are reliant on one another to

achieve a common goal; (2) individual accountability where each group member is held

accountable for doing his or her share of the work; (3) face-to face promotive interaction where

most of the tasks are performed through an interactive process in which each group member

provides feedback, challenges one another, and teaches and encourages his or her group mates;

(4) appropriate use of collaborative skills to develop and implement trust-building, leadership,

decision-making, communication, and conflict management skills; and (5) group processing,

where group members establish group goals, assess the team's performance periodically, and

identifies changes necessary for the group to function more effectively.

Cooperative learning methods vary from class to class but follow these general

guidelines. Students receive instructions and objectives from their instructor. The instructor

assigns each student to a group. The instructor also provides materials to complete the required

assignment. Students who need help in completing the assignment are instructed to ask their peers for assistance. Students are expected to interact with members of their group, share ideas and materials, support and encourage each other's academic achievement, orally explain and elaborate concepts and strategies being learned, and hold each other accountable for learning and completing the assignment (Johnson et al., 1991).

In cooperative learning, facilitators form smaller groups (2-4 members) for two reasons. One reason is that smaller groups are both more efficient and more effective than larger groups in dealing with many types of tasks. The other reason is that appropriately designing the tasks and guiding students' interactions will compensate for any loss of input that might come from having smaller groups. Most cooperative learning tasks are structured to be completed within one class period, and these tasks can be handled by groups with 2-4 members. The duration of the groups is often determined by the tasks they will be asked to complete. A typical think-pair-share activity would use short-term groups during a single class period (Michaelson, Davidson, & Major, 2014).

Cooperative learning does not ask teachers to teach the students, but it directs them to the sources of information.  In this way, students create their own learning. Cooperative learning enhances the focus of constructivism and enables students to reach their learning goals. To do this, small teams are created and interdependence is generated, so group members help each other reach their goal (Tombak & Altun, 2016). The use of cooperative learning can lead to students' anxiety reduction and higher performance. It can be concluded that cooperative learning provides a comfortable, non-stressful atmosphere and give opportunities for students to support, encourage, and praise each other through discussion, creating, and thinking in a group rather in a whole class context (Nejad & Keshavarzi, 2015).

There are four types of cooperative learning: formal; informal; cooperative base groups; and constructive controversy. *Formal cooperative learning* consists of students working together, for one class period to several weeks, to achieve mutual learning goals and assignments (e.g., solving a set of problems, writing a report or theme, etc.). *Informal cooperative learning* consists of students working together to achieve a joint learning goal in temporary groups that last from a few minutes to one class period (e.g., students are engaged in three-to-five minutes of focused discussions after watching a film or lecture together). *Cooperative base groups* are long-term, heterogeneous cooperative learning groups with consistent membership, in which students provide support, encouragement, and assistance to one another to make academic progress. Finally, *constructive controversy* involves deliberate discourse (i.e., the discussion of the advantages and disadvantages of proposed actions) aimed at synthesizing new solutions (Johnson & Johnson, 2014).

There are examples of cooperative learning in the classroom, such as: (1) a group presentation will often be used when an open discussion needs to take place. Students spend a significant amount of time preparing a presentation, and learning takes place effectively in such group work. Students meet up numerous times to plan, design, and integrate knowledge and ideas from each group member to make a satisfactory presentation. Students learn not only from textbooks, journal articles, and online resources, but also from exchanging their views among their partners; (2) structured inter-group feedback is where the lecturer introduces the opportunity to students listening to the presentation in providing feedback after the presentation is over; and (3) hands-on group activity is where students participate in a hands-on group activity, such as constructing a DNA model for an undergraduate biology course. Group activity enhances group interaction, interpersonal cooperation, and management skills. By

communicating the individual member's needs and negotiating with other group members, students learn to work with one another (Yang & Qian, 2018).

<div align="center">The Benefits of Cooperative Learning</div>

Kinsella, Mahon, and Ullis (2017) researched that students benefited from cooperative learning in group work. Students perceived how group work made students engage more, is easier, and improves grades. Students commented that, "learning with peers can be interesting and fun to be involved in," "group projects teach students communication and mutual respect," and "we learn responsibility and how to hand in projects on time." Students organizing an event together commented that cooperating, learning, and working together was a positive experience that gave the chance to "connect" with group members and classmates in general. One student said, "I can improve myself such as trusting teammates; trust is crucial to teamwork, and it starts with people knowing each other" (Daud, Zin, & Yusof, 2019).

One group of researchers studied peer learning/cooperative learning and showed that students engaged in peer learning applied it to practicing their musical instruments to various degrees. This process involved sharing and discussing practicing topics with peers and spending time practicing with peers. Students in improvisational music/jazz engaged the most in peer learning. The students also reported that their own practicing habits were influenced by their peers (Nielsen, Johansen, & Jorgensen, 2018).

There are reasons why cooperative learning works well among students and leads toward student achievement. Students learn more by doing something active than by simply watching and listening (e.g., lectures). Furthermore, cooperative learning enhances learning because: (1) weaker students working individually are likely to give up when they get stuck, and by working

cooperatively, they keep going; (2) strong students find gaps in their own understandings of academic material and the understandings of weaker students and can then help weaker students by filling in the gaps; and (3) students working alone may tend to delay in completing or skip assignments altogether (Abdulahi, Hashim, & Kawo, 2017).

Working cooperatively with peers and valuing cooperation, results in greater psychological health, higher self-esteem, and greater social competencies than competing with peers or working independently. When individuals work together to complete assignments, they interact (improving social skills), promote each other's success (gaining self-worth), and form personal and professional relationships (creating healthy social development). Students provide the opportunity to share and solve personal problems, which increases an individual's resilience and ability to cope with adversity and stress. Students learn how to communicate effectively, provide leadership, help the group make good decisions, build trust, repair hurt feelings, and understand others' points of view (Johnson & Johnson, 1999).

<u>Cooperative Learning and Critical Thinking Skills</u>

Cooperative learning allows for group members to improve their critical thinking skills. One area of critical reflection is *openness about mistakes*. It enables people to learn from their mistakes and see them as opportunities to realize their accepted views about reality may be misguided. Being open about mistakes means that students share and compare with others what went wrong. It allows them to see and evaluate what is effective or ineffective in practice. Students receive feedback from others. Being defensive or trying to cover up mistakes could reduce the chances of discussing their actions or learning from others. The method of *comparing one's own perspective to others' perspectives* also facilitates making informed decisions (de

Schepper & Sotiriadou, 2017). Group members allowing themselves to be open to the opinions of others will help expand their understanding and learning of new things.

It is clear that students gain important skills while working on an assigned cooperative learning project. According to one research study, students claimed that while working on an assigned project, they had to master various skills, such as time management skills, teamwork skills, communication skills, which promoted creativity. Students found that the activities were challenging and required them to think out of the box, hence promoting critical thinking. This cooperative learning activity also allowed the students to participate in an environment where it nurtured their creativity (Azizan, Mellon, Ramli, & Yusup, 2018). The next section discusses reflection and how adult learners use reflection to understand and improve their learning on new processes and ways of doing things.

<div align="center">Reflection</div>

Reflection is important in our personal and professional livelihoods especially when we strive to gain understanding in learning new things and improve current methods and processes. We use reflection at school, our workplace, at home, etc. by thinking things over and trying to figure out a way of doing things better. It is important to understand reflection and its potential uses, especially in the application of collaborative learning. The following section includes: (1) *what is reflection*, (2) *learners' experiences and reflection*, (3) *reflection-in-action and reflection-on-action*, and (4) *reflective practice*.

<div align="center">What is Reflection?</div>

Reflection means some phenomenon is subjected to thorough consideration and that one's thought dwells for a longer period of time on an object to obtain a better and deeper

understanding of it. The object of reflection can be: (a) one's own activity; or (b) any kind of object. It is possible to reflect upon something quite different than oneself (e.g., the origin of the earth, the nature of electricity, etc.). The reflection of one's own professional activity (e.g., teacher) can be aimed at the planning of a school lesson or the evaluation of a carried-out instruction (Bengtsson, 1995).

Reflection is understood as a specific kind of critical thinking that is oriented internally towards one's meaning perspectives. If a person chooses to and is able to reflect on and critically inspect their actions, it is possible they will revise those actions in favor of other, better actions. Thus, reflection is seen as a means both toward understanding and knowing one's experiences (Malkki & Green, 2016).

Reflection is both an individual and collaborative process, which involves experience and uncertainty. It consists of identifying questions and key elements of an issue that has emerged as significant, then using one's thoughts to dialogue with oneself and others. The insights of reflection include: (a) additional perspectives; (b) one's own values, experiences, and beliefs; and (c) the larger context within which the questions are raised. Through reflection, individuals reach newfound clarity (Jay & Johnson, 2002).

To make "meaning" means to make sense of an experience, and individuals make an interpretation of it. People use this interpretation to guide their decision-making or actions. After they make meaning of what they experienced, then this concept becomes "learning." Reflection enables individuals to correct distortions in their beliefs and errors in problem-solving. Critical reflection involves a critique of the presuppositions on which certain beliefs have been built (Mezirow, 1990).

Individuals, such as working professionals, find that critical reflection provides a way of "standing back" and seeing the issues from a different perspective. They say the theory of critical reflection, as well as the process, makes it possible for them to articulate and analyze issues, particularly identifying what they have assumed about how things are and how they could be. They also articulate the value of knowledge generated from their own experience (Fook & Gardner, 2007).

Every individual has a particular view of the world. The worldview may or may not be well articulated, but it is usually based on a set of assumptions that derive from the individual's upbringing, life experience, culture or education. Individuals have difficulty changing because their worldviews become unconscious frames of reference of the habits of the mind. He argued that particular points of view can become so ingrained that it sometimes requires a powerful human catalyst, a forceful argument, or a disorienting dilemma to shake them. There is the need to develop communicative skills so that internal and external conflicts, which result from changes in perspective, can be resolved via rational discourse rather than force (Christie, Carey, Robertson, & Grainger, 2015).

Critical consciousness refers to a way in which learners develop the ability to analyze, pose questions, and act on the social, economic, political, and cultural contexts that influence and shape their lives. Through dialogue and problem solving, learners develop awareness of structures within society that may be contributing to inequality, social injustice, and oppression. Learning helps adult learners develop a deeper understanding of the ways in which these social structures shape and influence the ways they think about themselves and the world. This method consists of action and reflection in transactional or dialectical relationship with each other

(praxis). Education, through praxis, should cultivate freedom among learners by enabling them to reflect on the world and, thereby, take action to change it (Dirkx, 1998).

Transformative outcomes involve the development of critical consciousness whereby people perceive themselves as active subjects in the world rather than passive objects to be acted on by unfair social practices, norms, and institutions. Being an active subject involves constant reflection and acting to make the world a fair place to live. There should be a shift in authority from educators to students. Certain educators believe in a problem-posing education, whereby learners analyze problematic social, economic, and political situations and create their own solutions to address them. The purpose is to help learners develop perspectives, skills, and the confidence necessary to actively participate in shaping their world rather than passively accepting current social structures and practices (Hoggan, 2016).

<u>Learners' Experiences and Reflection</u>

Learners possess a personal foundation of experience, which profoundly influences the way they perceive the world. This foundation particularly influences the intellectual and emotional content of their experience and the meanings that are attributed to it (Boud & Walker, 1991). It is the learners' engagement with their personal social environments and their construction of what happens to them that constitutes a particular learning experience. Each learner forms a part in their milieu, enriching it with his or her personal contribution and also creating an interaction that becomes part of the individual as well as the shared learning experience. Experience may be viewed as a continuing, complex series of interactions between learners and the learning milieu. A reflective process also exists, which can move learners to take appropriate action (Boud & Walker, 1991).

Learning arises from the creative tension between four learning modes. This process is portrayed as an ideal cycle where the learner touches all the four modes: (1) experiencing, (2) reflecting, (3) thinking, and (4) acting or action. Immediate or concrete experiences form the basis for observations and reflections. These reflections are assimilated and converted into abstract concepts from which new thoughts for action can be drawn (Kolb & Kolb, 2013).

In any situation, there is reflexive activity in which the learner processes what is perceived, and this step becomes the basis of new knowledge and further action. Reflection on the experience needs to be linked to the events which gave rise to that experience. Learners replay the events that took place and to notice exactly what occurred, as well as the reactions that developed. As with reflection after the event, learners are influenced by their personal experience and intent. What is taking place within learners is an integral part of the experience. The interaction between the learners and their personal social environments will affect them. It is important for them to be aware of the feelings that are being generated, the thoughts that arise, and the actions that may be prompted (Boud & Walker, 1991).

Reflection after the experience can affect the personal worldview of the learners and can help ensure that new perspectives on experience will be present in the future. The new learning which flows from reflection cannot only change future approaches to events, but it can also affect the behaviors of learners and provide them insight into how they learn. Reflection after the experience plays an important role in one's awareness of the personal, political, and socio-cultural dimension of the learning process (Boud & Walker, 1991).

Self-reflected learning is directed at personal change. Its emphasis is on critical reflection about oneself as a member of larger social units to ask basic questions about one's identity and self-change. This change involves a transformation in "meaning perspectives," which are

psychological structures of thought, will, and feeling, and which represent the way a person looks at self and relationships. People become critically reflective when they bring their assumptions, premises, criteria, and schemata into consciousness and vigorously critique them. Critically reflective learners are continuously sensitive about why things are being done in a certain way. Critically reflective learners will not automatically follow an "expert's recipe" for solving a problem. They will determine whether they see the problem and proposed solution in the same way. They will attempt to understand how suggested solutions fit with their own image of themselves (Marsick, 1988).

<div align="center">Reflection-in-Action and Reflection-on-Action</div>

Reflection-in-action is a process of inner logic according to which reflection on the unexpected consequences of one action influences the design of the next one. In the performance of some task, the performer spontaneously initiates a routine of action that produces an unexpected outcome. The performer notices the unexpected result an error to be corrected. He or she asks the question, "What is this? What understandings of mine have led me to produce this? The performer restructures his or her understanding of the situation. He or she invents a new strategy of action. The performer tries out the new action he or she has invented, such as running an on-the-spot experiment, which in turn results in either a solution, a satisfactory outcome, or else a new surprise that calls for a new round of experiment and reflection (Schon, 2001).

The concept of reflection-in-action can be seen in musical improvisation. When good jazz musicians improvise together, they display reflection-in-action smoothly integrated into their ongoing performance. Listening to one another and listening to themselves, they feel where the music is going and adjust their playing accordingly. A musical idea announced by one

performer will be taken up by another, elaborated on, and turned into a new melody. Each player makes on-line inventions and responds to surprises by the other player's inventions. Improvisation consists in varying, combining, and recombining a set of musical ideas within a schema that gives coherence to the whole piece (Schon, 1987).

Reflection-on-action refers to looking back to what was going through the adult learners' minds during the actual practice encounter (reflection-in-action). The next time we engage in actual practice, our reflection (reflection-in-action) should draw on our previous reflection-on-action. This process sets up a cycle in which we integrate the two sets of reflection and thus provide a basis of facilitating the integration of theory and practice. Overall, it is to make sure practice is informed by theory and theory is informed (and tested) by practice (Thompson & Thompson, 2008).

<u>Reflective Practice</u>

Medicine, agronomy, and engineering are professions that use scientific knowledge. Physicians use techniques of diagnosis and treatment based on the physiology of the disease. Production engineers use theories and techniques of statistical analysis to solve problems of product quality and production efficiency. Construction engineers apply the results of research on soil conditions and building structures to choose and implement building foundations (Schon, 1983).

All professionals who engage in reflective practice, such as physicians and engineers use experimentation aimed at testing hypotheses or achieving a particular technological effect. This process repeatedly produces unexpected phenomena triggering new hypotheses, goals, and

questions. Experiments function to test technological moves, discriminate among plausible scientific hypotheses, and explore new kinds of phenomena (Schon, 1983).

The structure of inquiry involves two kinds of movement mediated by reflection. First, reflection leads to experiment. Second, reflection on the unexpected results of experiment leads to discovery or invention. The interweaving of theory building and invention, experiment functions both to confirm or disconfirm hypotheses, to affirm or negate moves, and to explore new phenomena. The discovery of new hypotheses and hypothesis-testing experiment leads to invention (Schon, 1983).

Hale, Nanni, and Hooper (2018) discovered that educators conduct research on a daily basis. They observe, reflect, and make adjustments to their teaching. Action research gives teachers concrete, localized data that they can analyze and reflect upon. For reflective practice to lead to meaningful change, there needs to be some formal data collection performed. The next section discusses group (team) dynamics, and how group (team) members organize and interact with each other especially during collaborative learning.

<p align="center">Group (Team) Dynamics/Leadership</p>

Collaborative learning is successful, especially within small groups or teams. To understand how collaborative learning is applied, it is important to understand how group (team) members work and interact with each other. The following section discusses group (team) dynamics, which include: (1) *the background of a group (team)*, (2) *teams*, (3) *team leaders and team leadership*, and (4) *knowledge sharing*.

## The Background of a Group (Team)

A group (team) is two or more individuals connected by social relationships. The members of any given group are connected to each other like a computer network. In families, the relationships are based on kinship, but in the workplace the relationships are based on task-related interdependencies. In some groups, members are friends of one another, but in others the members express little mutual attraction. The larger the group, the more connections are needed to join members to each other and to the group (Forsyth, 2014).

Groups are the setting for a variety of interpersonal interactions. Group members talk over issues, get into arguments, and make decisions. They can upset each other, but at the same time, give each other support. They would likely work together to accomplish difficult tasks. Many of the most interesting, influential, and entertaining actions take place when people join with others in a group (Forsyth, 2014).

When people are in groups, it is vital to belong to a group of familiar, cooperative people who care about one's welfare. Therefore, there is an inclination to form and sustain social bonds with others in order to defend oneself and protect one's resources against external threats (Baumeister & Leary, 1995). For example, researchers discovered that adults becoming members of a gardening group promoted a benefit of increased social connectedness compared to non-members. The social benefits of gardening included meeting new people, making and maintaining friendships, and having a shared interest to connect with other people (Scott, Masser, & Pachana, 2020).

<u>Teams</u>

Teams have many important characteristics. *Proficiency* is when each team member is proficient at each task they are assigned to perform. *Communications* includes the ability to communicate between team members and between the team and others outside their environment. *Modeling* is a method of giving positive feedback or sharing knowledge without appearing to critique. *Envisioning* means creating and sharing a plan for the entire group, and it supplies meaning and direction. *Adaptability* is the ability to adjust to changes. A leader/follower can *influence* others and obtain an agreement to ideas or actions (Tullo, 2010).  To work effectively in a team, team members must possess specific knowledge, skills, and attitudes, such as monitoring each other's performance, knowledge of their own and teammate's task responsibilities, and a positive attitude toward working in a team (Baker, Day & Salas, 2006).

It is important to recognize that groups (teams) go through stages, and that team task and members' relationships will change over time. A team or group develops in its own culture its distinct traits and patterns, as it progresses. Dr. Bruce Tuckerman developed a model of how teams progress and exhibit behaviors around the group's task and interpersonal interactions. The stages of the model are: (1) Stage 1 or *forming* is the time of organization and orientation of the tasks. The tasks and information will be identified. The members of the group will look to others to either lead or follow; (2) Stage 2 or *storming* is when individual emotional responses within the group begin to appear. Varied understandings of tasks and roles are expressed or become apparent. Differences between members may be expressed in a hostile manner, and members may wonder if they want to remain part of the group; (3) Stage 3 or *norming* is when communication opens up and develops. Information is being exchanged and ideas and opinions

are shared. A sense of harmony becomes present within the group; (4) Stage 4 or *performing* is when everyone is focused on the constructive action directed towards successful completion of the task. Problem solving will be primarily directed to the work and the product; and (5) Stage 5 or *adjourning* is when teams have completed their tasks, they wrap up, and then go onto other teams in other places. The conclusion of the interpersonal behaviors includes a chance to say thank you and good-bye to the team members (Macpherson, 2015).

Teamwork involves multiple individuals, interdependence, and a shared goal. Teamwork is an adaptive and dynamic process that includes the thoughts, feelings, and behaviors of team members while they interact to achieve a common goal. Teamwork is necessary for an effective team performance because it defines how tasks and goals are accomplished by the team (Salas, Shuffler, Thayer, Bedwell, & Lazzara, 2014).

Team Leaders and Team Leadership

Team leaders have a key opportunity to change and influence the direction of the team. By providing guidance and developing skills, leaders can shape the team's processes, behavior, and performance. They may use a number of methods, such as conducting briefings, emphasizing shared goals, and energizing and engaging team members (Reyes, Dinh & Salas, 2019).

When a leader admits their own faults, he or she makes others feel at ease to communicate any errors they might make. This method helps team members feel comfortable in opening up. Leaders also should reach out to team members for their views and ideas. This process could be done by formally setting aside time for a forum during a meeting, or informally checking in with team members periodically (Reyes et al., 2019). The leader also enacts the

values and standards of the team by consistent and deliberate adherence to these values and standards (De'Bell & Clark, 2018).

The qualities of a good leader include: (1) *character,* which includes personality, attributes, values, attitudes, appearance, aspirations, temperament, etc. It is important to understand what aspects contribute to the success as leaders; (2) *competence* refers to the abilities, skills, and knowledge relevant to leadership. Competence also refers to the abilities, skills, and knowledge specific to particular roles, professions, and responsibilities of a leader; (3) *context* includes the physical, psychological, social, cultural, economic environment, as well as the various situations and stress that a leader may face;  and (4) *communication* takes into consideration the leader's vision for the group or organization and style of communication. It is important to recognize that communication involves sending and receiving information, verbally (oral and written words) and nonverbally (body language, facial expressions, gestures, etc.; Callahan & Grunberg, 2019).

Authentic leaders do not fake their leadership. They do not pretend to be leaders just because they are in a leadership position, for example, as a result of an appointment to a higher management position. They do not work on developing an image or persona of a leader. For authentic leaders, performing a leadership function and related activities are genuine acts for authentic leaders. It is partly what they feel to be their "true" or "real" self.  Moreover, authentic leaders to do not take on a leadership role or engage in leadership activities for any prestige, status, honor, or other personal rewards they may reap. They lead from conviction. They have a cause or mission they want to promote, and they engage in an effective leadership style to promote this cause or mission (Shamir & Eilam, 2005).

Team leadership engages in various team activities, such as: (1) team leaders engage in information search to acquire and synthesize data. Effective team leaders ensure relevant data are gathered and the team uses internal and external expertise to interpret that data; (2) team leaders engage in information use for problem solving in the development of plans to meet team goals. Effective team leaders also engage team members in generating ideas and setting team goals; (3) team leaders engage in managing personnel resources to ensure that the team has enough members with the needed expertise and connecting them to professional development opportunities; and (4) team leaders engage in managing material resources to ensure team members have access to equipment, tools, and services (Fleishman, Mumford, Zacarro, Levin, Korotkin & Hein, 1991).

There are many kinds of leadership, but democratic leadership, also known as participative or shared leadership, is a style where ideas from team members and peers are considered and valued. Everyone on the team are encouraged in exchanging their ideas and opinions. The democratic leader encourages the team to share ideas in the decision-making process; however, the responsibility of the final decision-making is with the leader. Researchers have discovered this leadership style is one of the most effective types which leads to high productivity (Gadirajurrett, Srinivasan, Stevens & Jeena, 2018).

The democratic leadership style or participative style encourages employees or team members of an organization to be part of the decision-making process. The democratic manager keeps his or her employees or team members informed about everything that affects their work and shares decision-making and problem-solving tasks. Democratic leadership can produce high quality and high quantity work for a long time. Many employees or participants enjoy the trust they receive and respond with cooperation, team spirit, and high morale (Khan et al., 2015).

Participative leadership style involves all members of a team in identifying goals and procedures or strategies for reaching those goals. It can be seen as a leadership style that relies heavily on a leader who facilitates rather than issuing orders or making assignments. This process allows the development of additional leaders who can serve the organization in the future. From this perspective, a participative leadership style encourages the active involvement of everyone on the team. People are able to express creativity and demonstrate abilities and talents that might otherwise not be made apparent. The discovery of these hidden talents benefits the work of the entire team (Iqbal, Anwar, & Haider, 2015).

In a research study, virtual project members are experts within their respective fields. Project members often have several years of experience and are ready to take responsibility to achieve a joint task. Project members often welcome alternative leadership approaches that offer the opportunity for shared leadership responsibility. Project members who are experts within their respective fields and whose knowledge exceeds that of the project leader, are often interested in exerting (partial) leadership influence and actively helping to shape the project. Formal leaders who make use of the collective leadership potential in the project strengthen their teams as opposed to relying on themselves as the primary source of leadership. Sharing leadership responsibility in a virtual team benefits not only for the interests of the project members but also the project leaders (Hoegl & Muethel, 2016).

<div align="center">Knowledge Sharing</div>

Knowledge sharing is the process in which individuals share explicit and tacit knowledge, and they work together to create new knowledge. This process is important in transforming individual knowledge into organizational knowledge. The effectiveness of an

organization can be strengthened when people pass on information, good practices, tips, experience, and lessons learnt (Solek-Borowska, 2018).

Teams are likely the primary vehicle through which internal and external knowledge is shared in an organization. When teams become a regular occurrence in an organization, knowledge sharing between and across teams becomes important. Team creativity also is regarded as a process and an outcome which also emphasizes the role of knowledge sharing. Team creativity will not occur until a culture of knowledge sharing exists within the team (Solek-Borowska, 2018).

Knowledge sharing is not only the process of transferring knowledge, but it is also the process of helping knowledge recipients to internalize knowledge. Knowledge internalization is where knowledge receivers internalize and absorb knowledge through organizational learning, and then create new productivity. Knowledge sharing involves providing the organization with a relaxing learning atmosphere and free movement of knowledge, resulting in enhancing the learning efficiency of the members of the organization. As a result, the organizational members' skills are continuously upgraded and ultimately the organizational learning performance and performance levels are improved (Rao, Yang, & Yang, 2018).

For knowledge sharing to take place, the organizational culture requires a *trusting atmosphere*, so everyone feels comfortable about sharing their thoughts and ideas (Block, 2019). Trust is important for any fruitful communication and meaningful exchange of thoughts and ideas. People do not share knowledge with colleagues whom they do not trust (Basit-Memon, Mirani, & Bashir, 2018). Trust affects the sharing of tacit knowledge in interpersonal relationships. High-level trust decreases conflicts between individuals and between group members. Members can trust in each other's good intentions and motives without suspicions. As

a result of trust, conflicts can be avoided or at least solved more constructively and effectively (Savolainen, 2019).

Knowledge sharing generates a healthy work environment that leads to new idea generation, idea promotion, and idea realization within an organization. Organizational leaders should try to provide a knowledge-sharing environment by encouraging individuals to participate in knowledge sharing. Some individuals share the knowledge for social acceptance purposes or a desire for knowledge exchange in return. In summary, in order to facilitate idea generation, idea promotion, and idea implementation, it is important for organizations to create a knowledge sharing environment (Akram, Lei, Haider, & Hussain, 2018).

Great companies or organizations have a "we culture." Furthermore, they succeed in developing a strong culture with a high degree of "we-consciousness." In such a culture, the employees or members are typically deeply involved at the tactical and operational levels to improve and develop the organization and how it works. Great companies or organizations have strong relations between management, who are sometimes the owners and the employees; this provides a breeding ground for good internal relations that lead to better knowledge sharing. Companies or organizations that emphasize the importance of collective knowledge sharing give their employees responsibility and ensure that everyone can contribute (Brondum, Nielsen, Tange, Laursen, & Oehlenschlager, 2015). The next section provides a summary of the literature.

## Chapter (Literature Review) Summary

Collaborative learning is the process where each group member contributes his or her own personal experience, information, perspective, insight, skills, and attitudes with the purpose of improving learning outcomes of others. The group's collective learning eventually becomes

possessed by each individual (Klemm, 1994). There are numerous activities which are performed collaboratively by the learners, such as: (1) role play, (2) debates, (3) group projects, (4) summary writing, (5) case studies, and (6) preparation of a group or pair presentation, etc. The main objective of collaborative learning is that students are involved in classroom activities (Paul, 2016).

Collaborative learning has connections with social constructivism. Social constructivism in education is enacted when learners are encouraged to interact and participate in learning to construct, transfer, and share knowledge. Discussions help improve students' ability to test their ideas, develop collaborative skills, improve problem-solving skills, and build deeper understandings of what they learn (Thinley et al., 2014).

The collaboration process contributes to creative thinking through various interactions. Participants share information about new ideas. The second stage includes collaborative activity, in which students in groups discuss and select the most interesting suggestions. Students also plan their work, organize the discussions, and make decisions. The third and final stage of the process becomes the stage of reflection results and process. The students provide feedback, and reflection on their work (Fedorinova et al., 2018).

Informal learning is where formal education no longer comprises the majority of our learning. Learning occurs in a variety of other ways, such as communities of practice, personal networks, and through completion of work-related tasks (Siemens, 2005). Informal learning is considered to be self-directed, while students have flexibility in what and how they learn. It is learning that students undertake without necessarily being asked explicitly to engage in that particular learning (Lai & Smith, 2018).

The cooperative learning approach involves students actively working and learning together in small groups to accomplish a common goal in a mutually helpful manner (Davidson & Major, 2014). Students seek outcomes that are beneficial to everyone. They discuss material with each other, help one another to understand it, and encourage each other to work hard. Individual performance is checked regularly to ensure all students are contributing to the group and learning (Johnson & Johnson, 1999).

Reflection means some phenomenon is subjected to thorough consideration and that one's thought dwells for a longer period of time on an object to obtain a better and deeper understanding of it. The object of reflection can be: (a) one's own activity; or (b) any kind of object. It is possible to reflect upon something quite different than oneself (e.g., the origin of the earth, the nature of electricity, etc.). The reflection of one's own professional activity (e.g., teacher) can be aimed at the planning of a school lesson or the evaluation of a carried-out instruction (Bengtsson, 1995).

A group (team) is two or more individuals who are connected by social relationships. The members of any given group are connected to each other like a computer network. In families, the relationships are based on kinship, but in the workplace the relationships are based on task related interdependencies (Forsyth, 2014).

Team leaders have a key opportunity to change and influence the direction of the team. By providing guidance and developing skills, leaders can shape team processes, behaviors, and performance. They may use a number of methods, such as conducting briefings, emphasizing shared goals, and energizing, and engaging team members (Reyes et al., 2019).

Knowledge sharing is the process, in which individuals share explicit and tacit knowledge, and they work together to create new knowledge. This process is important in

transforming individual knowledge into organizational knowledge. The effectiveness of an

organization can be strengthened when people pass on information, good practices, tips,

experience, and lessons learnt (Solek-Borowska, 2018).

## Conceptual Framework

My personal and academic interests in this study include: "How do adult learners meet

and discuss, exchange ideas, and create new ideas through collaborative learning regarding

projects related to musical creativity and innovation?" I chose to study a university music

ensemble class and the influence of ensemble members' actions on how they learn new musical

concepts and perform together, despite some of them having little or no musical backgrounds.

There was no one right method or way to learn and harmoniously perform musical pieces in a

musical ensemble. The musical ensemble instructor welcomed and encouraged group

collaboration, collaborative learning, cooperative learning, and reflection classroom environment

that strove to be democratic. All the music ensemble members, the class instructor, and

individuals from outside the music ensemble cooperated, shared ideas, performed together, and

introduced creative ideas into their musical performances.

Many learning theories contribute to this type of learning. The purpose of this section is

to introduce and discuss the conceptual framework of this study, involving: (1) *collaborative

learning*, (2) *informal learning*, (3) *cooperative learning*, (4) *reflection*, and (5) *group dynamics*

## Conceptual Framework Discussion

My study consists of a conceptual framework of collaborative learning. Collaborative

learning is a multidisciplinary approach that uses many adult learning theories to explain how

adult learners to learn new concepts and collaborate together to create new ideas, products, or services. Figure 2 shows an illustration of the conceptual framework of my study.
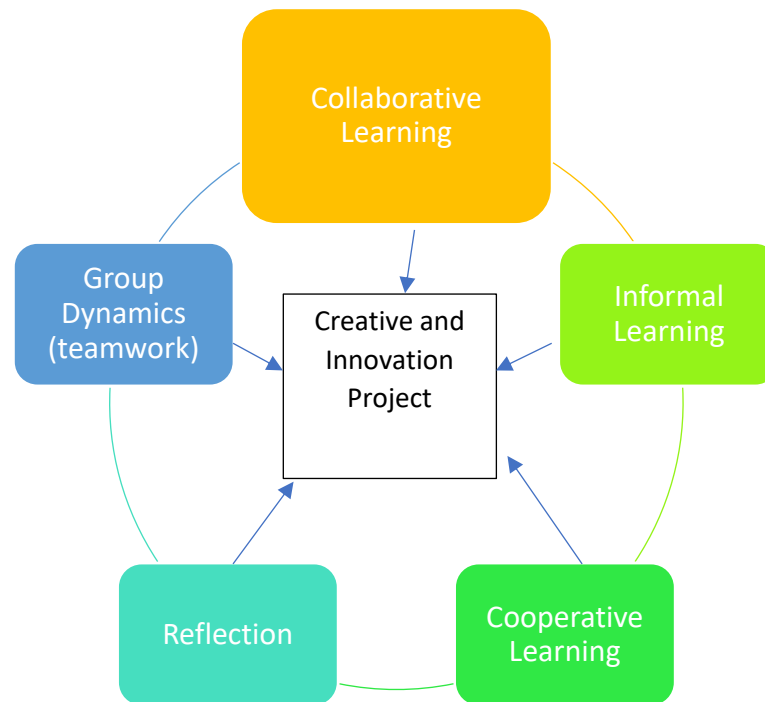


Figure 2. Conceptual framework of collaborative learning study.

As the diagram in Figure 2 shows, collaborative learning is the major learning theory of this study, but other learning theories (e.g., informal learning, cooperative learning, reflection, and group dynamics) are needed to help support and nurture collaborative learning, so that adult learners can participate and create new ideas together. Adult learners collaborate and construct new knowledge together (collaborative learning). They can collaborate anywhere, including outside the classroom. They gather together in an informal learning space, such as a coffee shop or library to discuss ideas, thoughts, and opinions (informal learning). They help each other learn difficult concepts by sharing knowledge with each other (cooperative learning). Adult learners

need time to think things over and to "make meaning" in order to understand these new concepts and also to see the "big picture" (reflection). Leadership and teamwork are necessary for everyone to work together and accomplish the project (group dynamics).

CHAPTER 3

METHODOLOGY

This qualitative study focused on collaborative learning in a university school of music environment. The study used multiple sources of data, such as direct observation with accompanying field notes of classroom-related incidents, interactions, conversations, and interviews. It also used a phenomenological qualitative research approach, in which the goal was to describe a lived experience of a phenomenon (e.g., collaborative learning). The research involved observing the university's steel band music class and other music ensembles during the academic year. I attended the classes and utilized semi-structured interviews and observation, including observed comments, field notes of incidents, interactions, and conversations in this research.

In order to understand how collaborative learning works with adult learners, I chose a phenomenological qualitative research approach because I wanted to explore it from the perspective of those who experienced collaborative learning, so as to understand the meaning participants attribute to that phenomenon. Oral interviews would be used to understand how the participants experienced their learning, what they learned, and how they learned it (Teherani, Martimianakis, Stenfors-Hayes, Wadhwa, & Varpio, 2015).

The study consisted of classroom observation and semi-structured, one-on-one in-person individual interviews. I analyzed the data by using NVivo 12 software, in which I coded the data into various categories, and then developed various themes after examining the data. I finally

used triangulation to determine whether my observational field notes supported my interview data.

The study's purpose was to achieve an understanding of how people make sense out of their lives and describe what they experienced. This chapter describes the research design, methods for collecting data, data analysis methods, data reliability, and research ethics.

## Overview of the Research Design

Following Institution Review Board (IRB) approval of this study, the study proceeded with two steps of data collection: classroom observation and semi-structured, one-on-one in-person individual interviews. I observed adult music students participating in the classroom and recorded any field notes. I also conducted semi-structured, one-on-one interviews with voluntary participants using a digital recorder and had the audio readings transcribed for analysis. This study started and ended during the Spring Semester of 2019. Finally, I conducted follow up questions with my participants on any issues that needed further research.

I imported the data (i.e., observational field notes and interviews) using NVivo 12 software. I conducted an analysis on the data by coding the data into various categories. I also performed a second cycle to "clean up" and finalize the various categories. I performed various analyses to determine the themes that are associated with the data. I used triangulation and determined whether the observational data supported the interview data.

During the data collection and analysis stage, I also wrote an analytic memo about what I believed I was learning during the research. Through this memo, I was able to articulate, explore, contemplate, and challenge interpretations when examining the data.

This study used a phenomenological qualitative research approach, in which the goal was to describe a lived experience of a phenomenon (e.g., innovation). The focus was on a deep understanding of the meaning of the experience (Waters, 2017). Phenomenology attempts to eliminate everything that is a prejudgment or presupposition. It requires looking at things openly and undisturbed by the habits of the natural world. The challenge is to describe things as they are and to understand meanings through intuition and self-reflection (Moustakas, 1994).

Phenomenology attempts to examine the participants understandings and experiences of the phenomenon (i.e., collaborative learning). The nature of the research questions provides a solid base for conducting the present study with a qualitative approach mainly focusing on "what?" and "how?" types of questions. One reason for conducting this study via a qualitative approach is to present a detailed view of the topic from the perspective of the participants who engage in collaborative learning and their perceptions and understanding in natural settings. Face to face interviews and observations are the tools to collect this data. Extensive data collection, from multiple resources, is the basic foundation of any qualitative study (Khan, 2014). The following section are the research questions used in this study.

## Research Questions

1. According to the participants, what are the benefits of collaborative learning?

2. How does collaborative learning contribute to adult learners' experiences in the classroom?

3. What significant knowledge and experiences do adult learners bring to collaborative learning?

Research Setting and Participants

The location for this research was the University School of Music (USM) at Northern Illinois University (NIU), Dekalb, Illinois. The research setting was the NIU Community School of the Arts (CSA)'s Steel Band Ensemble. The ensemble met in the NIU's music building, which was located within the city of Dekalb, Illinois. In 2014, the population of Dekalb was 44,054, in which there were 21,656 men and 22,398 women. The median resident age was 24.8 years, and the Illinois median age was 37.9 years. In 2016, the estimated median household income was $40,589. The estimated per capita income was $22,273. By race, Dekalb's population was as follows: 66.2% White, 13.2% Black, 12.9% Latino, and 4.8% Asian (City-Data.com, 2018).

I interviewed a total of 12 adult learners for this research. Research participants were assigned pseudonyms and were hereafter referred to only by their respective pseudonyms in this study. Selection of the sample population was on a voluntary basis.

The respondents were members of a community music ensemble within a university music department. They exhibited a broad range of academic involvement, work experience, and other disciplines. All respondents were active members of the music ensemble. The demographic characteristics of each respondent are shown in Table 1.

Certain participants of the research study were students of the university's school of music. Undergraduate and graduate music students represented the majority of the university's school of music. They came from the main university student body, in which there were 14,709 undergraduate students and 4,672 graduate students. The average undergraduate student age was 22 years old, and the average graduate student age was 32 years old. There were 1,211 international students from 77 different countries. The undergraduate student body was 50.8 %

Table 1

Demographic Characteristics of Respondents

| Respondent name | Occupation | Gender | Active member of Music Ensemble (Yes/No) |
|---|---|---|---|
| Jackie | Retired biology instructor; taught at local community college | Female | Yes |
| Sarah | Retired clinical social worker | Female | Yes |
| Charlie | Works at his father's business (apple farm) | Male | Yes |
| Dan | Informational technology (IT) manager at a local university | Male | Yes |
| Jack | Undergraduate music education major at a local university | Male | Yes |
| Amy | Undergraduate music performance major at a local university | Female | Yes |
| Betty | Retired advanced nurse practitioner | Female | Yes |
| Kerry | Music ensemble instructor | Female | Yes |
| John | Customer service representative/professional musician | Male | Yes |
| Molly | Government official of the local community | Female | Yes |
| Sandy | University biology professor at a local university | Female | Yes |
| Tony | Professional musician | Male | Yes |

male and 49.2 % female. The graduate student body was 46.6 %male and 53.4 % female. The undergraduate student ethnic/racial distribution was as follows: 57% White, 15.9 % Black, 15.4% Hispanic/Latino, and 5.0 % Asian (NIU Fast Facts, 2018).

A second group of students were members of the NIU Community School of the Arts (CSA), such as the steel band and ukulele ensemble. The participants ranged from middle-school students to retirees. There was an equal number of male and female students within both ensembles. The CSA classes were not credit classes; therefore, the students taking these classes were there for intellectual and/or personal interest pursuits (Daily Chronicle, 2018).

## Data Collection

This qualitative study included data collected primarily from semi-structured interviews of voluntary adult music students. Data was gathered during direct classroom observation of single individuals, paired individuals, and groups during session activities. The qualitative methodology was necessary to help answer research questions regarding how individuals used cooperative learning and reflection during innovation activities and to help identify specific factors that may foster or hinder innovation. The two-data collection approaches and research ethics are described below.

### Direct Observation Method

I observed while participating as a regular member or full participant of the music ensemble, and I recorded field notes while observing. I gave prior notice to the class members that I was conducting research for my dissertation study, and I also made everyone aware of my intentions, either orally or through written announcements. The identities of all participants remained confidential.

One class session lasted approximately 60 minutes and sometimes more. There were approximately 12 class sessions and two ensemble performances during the fall or spring semester of an academic year. After I observed a class session, I recorded field notes on my laptop computer.

My purpose for observing was determined by the theoretical framework, the research problem, and the research questions of this study. My goal was to explore the research problem and answer the research questions through observation. I observed and recorded notes on the physical setting, participants, the activities and interactions, conversations, subtle factors, and my own behavior.

There were various methods for observing in this research study. Participant observation involved being in the setting as both an observer and participant. Direct observation involved observing without interacting with the objects or people in the setting. Covert observation occurred when those being observed were unaware that I was observing them.

I intended to be a regular member/full participant of the ensemble and observe the behaviors of the participants. Participating with the other members of the ensemble helped me understand the phenomenon I was trying to research.

<u>Individual Interview Method</u>

I utilized semi-structured interviews that help address the research questions. The important reason is that interviewing is an interest in understanding the lived experience of other people and the meaning of that experience. At the heart of interviewing research is an interest in other individuals' stories because they contain valuable information. Interviewing provides an

access to people's behavior and provides a way for researchers to understand the meaning of that behavior (Seidman, 2006).

I asked each participant what was often experienced in collaborative learning, whether in their personal and professional lives or in the music ensemble classroom. Ideally, each interview took 45 to 60 minutes to complete, but this depended on the circumstances of the interviewer and the interviewee.

After the adult music students had become acquainted with each other and as an ensemble, I privately contacted individuals who were interested in sitting for a formal interview regarding their musical performance and collaborative learning experiences. I arranged the sessions and met with interviewees in a private location (e.g., restaurant) to protect their identities for the interview. I conducted all the interviews in-person, and each research participant read the appropriate documents (introduction/purpose of research letter, informed consent form, and participant's rights form). After reading and understanding the appropriate documents and agreeing to participate in the study, the participant signed all the forms listed above in my presence prior to the commencement of the interview (NIU Informed Consent Questions, 2018).

All interviews were taped on a digital voice recorder, and I transcribed each interview. The general plan was that prior to the start of the interview, I had a brief conversation with the interviewee to promote a relaxed atmosphere and increase rapport by relating the expected general interview process and the interviewee's rights to opt-out of the interview at any time. The interviews began with general questions on perceived processes and success during collaborative learning and innovation activities.

Research Ethics

While this research is aimed at providing benefits (e.g., contributing to adding knowledge to the current literature), minimizing the risk of harm among research participants was addressed as I followed ethical principles of practice according to the study's design. First, the volunteers were informed of their respective rights as volunteers taking part in research, including any potential inconveniences or risks. Their informed consent was obtained without coercion or deception. Second, safety measures were taken to ensure participant privacy and confidentiality in regarding data storage, analysis, and future publication of findings. Each participant was assigned a pseudonym. I placed all data (e.g., audio recordings, transcripts) in a locked storage cabinet to protect participant confidentiality and was the only person to have access to the locked storage cabinet. I informed the participants of the purpose of the research study, its intentions, and the background of the project. The participants were informed that he or she may withdraw from participating in the project at any time with no repercussions.

Method of Analysis

This study relied on self-disclosed information provided by the research participants and direct classroom observation with accompanying field notes. The participants provided data based on their subjective experiences and perceptions of collaborative design and innovation during a music class. The goal of this study was to explore how adult learners (i.e., adult music students) use collaborative learning in their personal and professional lives, as well as in the musical ensemble. The data analysis integrated semi-structured interviews, direct classroom observations, field-note data, and documents into an in-depth analysis addressing the research questions.

Transcription of Data

I transcribed all interview data. The field notes of class observations were used to validate and supplement the transcribed interview data. I imported the interview data and field notes from the class observations into NVivo 12, a qualitative research software tool.

Coding

I performed a text data analysis by highlighting and coding the transcripts. After I formed the codes based on the data, I organized the codes into categories and consolidated the codes into final categories within the software. I looked for what the codes may have in common to cluster them into patterns, themes, and significant findings. Through this data analysis process, I reviewed the data and strived to understand the conceptual framework (Merriam, 2009).

The body of data was sorted by undertaking thematic and inductive analyses. Emergent phenomena were sorted, grouped, and analyzed. Thematic analysis was used to group the data into coherent topics, themes, and concepts (Merriam, 2009). The coding and inductive process consisted of a first cycle of coding (open coding), a second cycle of coding (organize and "clean up" codes), thematic analysis, and writing memos.

As I reviewed my field notes, I looked at certain events that occurred and classified each event as a separate code. I assigned a code to each event (e.g., adult learners practicing in their own instrument sections, practicing C-scale drills, asking for help, etc.). I continued the same process with all my data. As Emerson, Fretz, and Shaw (1995) stated, after a researcher conducts a careful, minute reading of his or her field notes, and he or she begins to sift through and categorize small segments of the field notes by writing words and phrases that identify and name specific analytical dimensions and categories.

After I finished coding my field notes, I looked at all the codes. The various codes could be categorized under different headings, such as parent codes and child codes. Using NVivo 12 software, I was able to place certain child codes (e.g., greeting others, introductions, opening up to others) under various parent codes (e.g., human relations). The NVivo software allowed me to expand and collapse the nodes or codes. Erlingsson and Brysiewicz (2017) explained that after a researcher codes data, the next step is to compare codes and appraise them to determine which codes seem to belong together, thereby forming a category. Just as the authors described, I placed the codes into various categories.

## Inductive Analysis (Thematic Analysis)

At this stage, I made sense of the themes or categories identified and their properties. I also made inferences and presented reconstructions of meanings derived from the data. Then, I explored the properties and dimensions of the categories, identified relationships between categories, and uncovered patterns. I explored the properties and dimensions of the categories, identified relationships between categories, and uncovered patterns (Zhang & Wildemuth, 2005).

## Writing Memos/Triangulation

During the data collection and analysis stage, I wrote an analytic memo about what I believed I was learning during the research. Through this memo, I was able to articulate, explore, contemplate, and challenge interpretations when examining the data. Similarities and differences were identified, and relationships were explored (Birks, Chapman, & Francis, 2008). Writing an analytic memo was a critical aspect of effectively analyzing qualitative data (e.g., key informant

interviews, observations, document reviews, etc.) and provided the basis of the analysis I wrote in my final report.

I used triangulation to confirm the various forms of evidence, such as interview data and direct classroom observations. Then, I compared the data including interview data and classroom observations to examine and confirm how similar the research findings were to each other and to reality. As an example, I looked at Charlie and his informal learning experiences and compared the contents of his dialogue with personal observations of Charlie's behavior in the classroom. Through this triangulation method, I could see some kind of connection to the participant's dialogue and their behavior in the classroom.

<div align="center">Researcher Biases and Other Issues</div>

I had the following biases regarding my university music ensemble and its participants, as well as collaborative design and innovation: (1) the older an adult learner, the more difficult it was listen to others, especially from younger adult learners; (2) younger adult learners were more inclined to engage in collaborative learning than older adult learners; (3) some adult learners were not willing to try new ideas; (4) certain adult learners did not want to say anything, so they remained quiet during the ensemble practices; and (5) collaborative learning was challenging to do because it required a lot of time and energy from many participants.

I am currently a doctoral student in the department of Adult and Higher Education at NIU. I have a master's degree in human resource development and a bachelor's degree in business administration. I worked in the international business industry for many years before I decided to shift my careers from international business to adult and higher education. I speak foreign languages and enjoy traveling domestically and internationally. I like music, and play a

few musical instruments, including piano, bass guitar, and drums.  I enjoy foreign cultural

studies. I am a Christian with interests in Christianity and Buddhism.

Because of my interest in music, I joined a musical ensemble group sponsored by the

NIU Community School of Arts (CSA). I was a participant and performer for the CSA Steel

Band and served as a researcher for this study while participating in the university music

ensemble.

<div align="center">Chapter Summary</div>

This qualitative study focused on collaborative learning in a university school of music

environment. The study used multiple sources of data, such as direct observation with

accompanying field notes of classroom-related incidents, interactions, conversations, and

interviews. It also used a phenomenological qualitative research approach, in which the goal was

to describe a lived experience of a phenomenon (e.g., collaborative learning). The research

involved observing the university's steel band music class and other music ensembles during the

academic year. I attended the classes and utilized semi-structured interviews and observation,

including observed comments, field notes of incidents, interactions, and conversations in this

research. I analyzed the data by using NVivo 12 software, in which I coded the data into various

categories, and then developed various themes after examining the data. I finally used

triangulation to determine whether my observational field notes supported my interview data.

CHAPTER 4

FINDINGS

Emerging Themes

For this research, I identified five themes that arose from the participants' responses to the semi-structured interview questions and my observational findings. The five major themes I discovered were: (1) *collaborative learning solves new problems/develops new ideas*; (2) *informal learning fuels collaborative learning with new ideas*; (3) *cooperative learning helps others to learn difficult ideas*; (4) *reflection improves collaborative learning*; and (5) *group (team) dynamics/leadership creates a welcoming environment*. The descriptions of these themes are provided below.

Collaborative Learning Solves New Problems/Develops New Ideas

The first theme, *collaborative learning solves new problems/develops new ideas*, demonstrates how one individual is able to meet other members in a group, exchange ideas, acquire new knowledge, and solve an important problem for both the individual and the other group members. Collaborative learning allows new ideas to be developed based on ideas gained from other individuals. The ability to discuss and share ideas is crucial in collaborative learning. As discussed by Klemm (1994), collaborative learning takes place when each group member contributes their own personal experience, information, perspective, insight, skills, and attitudes to improve the learning outcomes of others. The group's collective learning is eventually

possessed by each individual. The interaction among students also generates extra activities

(explanation, disagreement, mutual regulation; Paul, 2016).

This section discusses two types of collaborative learning discovered in this study: (1)

*collaborative learning and problem solving* and (2) *collaborative learning develops new ideas*. It

discusses the participants in the research and their personal examples of how they used

collaborative learning.

<div align="center">Collaborative Learning and Problem-Solving</div>

This portion of the study discusses how adult individuals used collaborative learning to

solve problems in their personal and professional lives, as well as in the music ensemble. These

participants include: (1) Betty, (2) Charlie, (3) Dan, (4) and Sarah.

<div align="center">Betty</div>

Some participants in this study explained how they used collaborative learning to solve

problems by interacting with other members of a group, whether in their personal and

professional lives or in the music ensemble class. Betty mentioned that she worked with other

nurses at her hospital to create a continuing education program for the nursing staff.  She stated

the following:

> So, by this time, there were about five of us, advanced practice nurses who were working
> for various specialty private groups, and we put our heads together and decided that we
> could do continuing education or case presentation for the nursing staff. So, similar to
> what was presented for physicians, but really more specific to the nursing staff. It was a
> collaborative idea that was developed over beer after work, and it worked well for quite a
> while. We would pick out a [patient] case that we had all been involved in and presented
> it. And then, we talked about how each of us in our respective specialty areas
> collaborated for the better care of that patient. We did it without consciously thinking
> about it, but once you sit down, and you really looked at it, we really did a lot of
> collaboration.

Betty also described the experiences of the hospital rapid response team that she managed and directed, and how her nurses used collaborative learning in their work:

> A rapid response team includes intensive care nurses who work as a special team and care for patients in the hospital's intensive care unit. There are usually two nurses on duty. A patient admitted to the intensive care unit appeared to have a color change in their skin from a normal pink to an ashen grey. One nurse asks the patient, "How do you feel?" The patient might say, "I'm just tired today." One nurse might ask the other nurse, "What might possibly be wrong?" The two nurses will say to each other, "Well, let's get a set of blood gases." They will order that for the patient. The nurses also suggest, "Let's do saturation. Let's give the patient oxygen." They can do all these different interventions without the doctor's order. Then, depending on the patient's response, the rapid response team will contact the attending physician and inform him or her what the nurses did. The kinds of discussions that take place between the nurses include bouncing different ideas off of each other. One nurse asks the other nurse, "Do you think this is early sepsis?" Then they will talk to each other about it, "Well, what was the white blood count today? There wasn't one but let us look at yesterday's [white blood count]. What day did the patient have surgery? If they had surgery, what was their immune status?" After the nurses look at the patient's treatment history, they will come to a consensus. They discuss it with the bedside nurse as well, who may have other inputs and other insights because she was with the patient all day.

Betty also mentioned a situation in which she used collaborative learning in the music classroom to help out another music ensemble member who could not read music:

> I see individuals helping other individuals with particularly difficult [musical] passages. In the case of some people, those who don't read music, we need other ways to figure out which note [musical note] goes where. The particular person I have in mind, and I am sure you know who she is, when she first started last fall [Fall Semester, 2018]. Do you remember Catherine? We got together with Mercy [another student] and showed her [Catherine] how to color-code, so that she would have one color for the right hand and one color for the left hand, depending on, because she has two pans [double- seconds steel pans]. When she could look at the music, and she wrote the name of the note under each note on the [sheet] music, so that she could not only see that this was a "G," but she also needed to play it with a right hand because it was pink or blue, whatever.

Collaborative learning is where two or more people learn something together, such as capitalizing on one another's resources and asking one another for information. Collaborating and the sharing of information can make learning more efficient (Blum et al., 2017). Collaborative learning also involves sharing knowledge and experiences, in which students teach and learn from each other and develop interdependence. Students are able to efficiently obtain a huge amount of information, which is useful to students in generating new ideas for effective learning (Awedh et al., 2014).

Betty had collaborative learning experience as an advanced nurse practitioner in her previous workplace. She described how she discussed with other nurses to create an education program for other nurses, and she explained the collaborative learning used by her rapid response team nurses when determining why a patient felt ill in the intensive care unit. Betty applied these skills and knowledge to help her fellow classmate, Catherine, overcome major obstacles in reading sheet music. She collaborated with another classmate, Mercy, and the three of them devised a way for Catherine to play her instrument and read the notes of her sheet music, creating a color-coding system.  By sharing and collaborating, Betty used her previous knowledge and experience from her work.

<div align="center">Charlie</div>

Charlie, another research study participant, mentioned his personal experience in using collaborative learning with his co-workers on his father's farm. If he needed to discuss an issue or problem with his co-workers, he would get their ideas and feedback. He explained:

> It's usually while we are working something comes up, you know, and it's like we [fellow co-workers] are hashing out stuff as we are going. So, you know, there is not much time to sit and talk. It is about going and then, "Hey, I know this would work. Let's

try this." And if it doesn't work, you know, it is kind of, you can "turn and burn" on these ideas all the time. You do a lot of experimentation.

I asked Charlie what he meant about "turn and burn." He said:

If you don't have much time invested in a big thought-out idea, and you try something out, and it doesn't work, then you try something else out. And if it doesn't work, you just keep going through that until you find something that works. "Turn" refers to turning into a new idea or thinking and trying out a new idea. "Burn" refers to discarding the last idea.

Kolb (1984) stated that experiential learning complements collaborative learning, in which the here-and-now concrete experiences validate and tests abstract concepts. Information feedback provides the basis for the continuous process of goal-directed action and evaluation of the consequences of the actions. Problem-based learning, as discussed, also allows students to work in groups and pause to reflect on the research data they have collected, to generate questions about that data, and to hypothesize about the underlying mechanisms that might help explain it (Hmelo-Silver & Eberbach, 2012)

One could argue that Charlie used his previous work experience to validate and test ideas (experiential learning). He questioned what the problem was, hypothesized various, possible issues and solutions, and continued to experiment with those ideas until he found an appropriate solution. He also talked with his co-workers and confirmed the problems and ideas with them (problem-based learning). Additionally, he mentioned thinking about trying out new ideas ("turn") and then discarding old ideas ("burn").

<u>Dan</u>

Dan discussed how he used collaborative learning in his professional work and in the music ensemble. He explained how he used an online consortium to share ideas:

I go to a lot of trade shows, and there is a consortium of schools that gets together. We have our online discussion space, which is called "Learning Spaces Online," where people get on, and they share their ideas. So, they said, "These are the problems we are trying to solve, and this is how we solve the problem. Here are pictures of our learning spaces, and here are diagrams, and, you know, here is a chain about our thought processes."

Dan also shared his experience in attending an educational conference:

We went to a conference, and that is nice because, you know, most people pick one track, and so you were with the same group of people, and you get to bounce ideas off each other. And one of the services that they offered [the conference] was where we exchanged these offers that we would go to the other schools and evaluate their rooms [classrooms] and then they can come evaluate us because we have a standardized form to evaluate. That is one of the things the consortium came up with---a standardized form to evaluate classrooms and compare and contrast them.

Dan described a conversation he had with Tony, who arranged a musical piece for the music ensemble. The written music sounded different after it was played on a musical instrument. Dan mentioned how he tried to help Tony through collaborative learning by making certain adjustments to the musical arrangement:

I was standing next to Tony. He composes some of the music for the group [music ensemble]. Even [with] the music from Mozart, the way he had it in his mind, and the way he wrote it [musical notes] down [on paper] were different. You have to discuss and say, "This is what I mean, this piece of music," or, "This is how this [musical composition] should be played," or even, "This is what I was thinking. This is the mood I was in when I was composing the music." It makes a difference on how you perform it because then you can convey how the musical composer felt about it."

He [Tony] talked it to me. It was a discussion because we were all standing together. He saw the confusion in my face. I think that's what proximity does for you. There were a couple of times we exchanged ideas. He was helping me with the rhythm. I said, "Yes, with the thing here in respect to the key signature." He said, "I know it was either a flat or sharp." I said, "That is why I was hearing this a little bit different with sticking [when playing the sticks on the steelpan]. I said, "This is how I stick that part," and he said, "Yes, that makes sense."

Kuo et al. (2017) discovered that students in their research study enjoyed group work and found collaborative learning to be enjoyable, effective, educational, and interesting. Researchers also discovered that through group work, students engaged in interaction, information sharing, and idea negotiation to achieve consensus. Exchanging ideas through discussion and communication helps resolve disagreements among classmates or overcome challenges during collaborative group work.

Dan utilized his experience with the online discussion space and with the educational conference to share and bounce ideas off others. Having the opportunity to share and learn new ideas with others is a convenient and resourceful way to expand one's knowledge and to solve problems. Dan also discussed how he helped Tony adjust and refine the musical arrangement through various idea exchanges because the written music sounded different when it was actually played. In Dan's case, he interacted with others online, in person at a conference, and with Tony in the music classroom. He was able to share information, exchange ideas, and talk with others about various problems and issues.

<div align="center">Sarah</div>

Sarah, a clinical social worker, also discussed her professional experiences regarding collaborative learning and problem solving. She gave an example of how she helped a child with physical limitations to be in a rhythm band. She talked with two engineering students on how to create something that would allow the child to be a drummer in the band:

> I had kids who had physical limitations. One child basically had flippers for arms and legs, but he wanted to be in the rhythm band, and he could bounce in his wheelchair up and down, and he really was right on the beat, on the rhythm. So, I was like, "How can we get this kid to be a drummer or something, and how do we keep this musical group together?" I went to an engineering student I knew and said, "Help me make something

for this kid." I had the engineer come to one of our musical practices. Another engineer who he knew was kind of a friend of his. She came, she watched with him, and she started talking technical stuff. They were talking and I asked, "How hard does the kid need to be able to hit the drum?" I'm talking about a spring-loaded something. The female engineer said that you have to have enough force. She added that we have to see what he can do, or how much pushing he can do with his head, and how much the mechanism has to compensate for that. I was concerned about ethics (e.g., is this harness going to be safe to use?) After much research and discussion, we discovered that the child could bob his head back and forth. And so, we made this harness that went on his head with a spring; the engineering guy actually made it, but I told him that I wanted to do something so he could beat a drum, by bobbing his head or body, and we decided that the head was probably the best." He [the child] loved it, and he kept us, *boom, boom, boom, boom*. Right on beat. He loved being in the band.

Problem-based learning may involve individual and group activities, stimulating and inciting curiosity, motivation, self-guided study, and personal and group reflection. The problem that serves as the initial source of learning may be furnished by the instructor or proposed by students. Being a problem based on real life, students will be motivated to provide an accurate analysis and definition in understanding its nature and the necessity for solving the problem (Gorghiu et al., 2015).

For example, Sarah recognized that the child's problem was that he wanted to join a rhythm band despite his physical limitations. She discussed the problem with two engineering students, and after discussions and collaborative learning, they were able to find a solution by creating a drum to place on the child's head. Problem-based learning allowed for group interaction (i.e., Sarah and the engineering students), inciting discussion and a motivation to solve the child's problem. Problem-based learning allowed personal and group reflection; it allowed both Sarah and the engineering students to fully understand the true nature of the problem. Through collaborative learning, individuals can find innovative solutions to difficult problems.

Sarah also discussed how she successfully arranged for two violent, rival gangs to stop fighting each other and to play a game of baseball together. This event required collaborative learning:

> There was a meeting with myself, a juvenile police officer, the police chief [the boss of the juvenile police officer], and five gang members. I started the conversation with this crazy idea about a baseball game. One of the gang members asked right away, "Am I going to get some time taken off my probation if I do this?" And I said, "We are not the court. We don't have control over the court." I wanted to say to the gang members, [thus] giving them more control, "What do you want to do?" And so that would give them more buy-in into the idea. And Jane [the juvenile police officer] asks, "Well, do you guys, do you need, you know, bats? Do we need to get equipment?" One of the gang members asked, "If there is a fight, are we going to get arrested for this?" I said, "We are going to hire actual real umpires from the little league. If a fight breaks out, we will have to intervene, and the game will stop. We don't want violence. We need to have all the members sign a non-violence agreement." So, the gang members agreed to write one up. One of the gang members wrote one, and it was not in the greatest spelling and stuff, but he wrote up a non-violence agreement draft. He said, "I think everybody should have to sign one of these." He wrote it up and I cleaned up the spelling, and I went to my office, printed them out, and we had them all there. They signed it. They later wanted to come back. They were willing to meet because we said, "Well, we are going to leave a lot of the control up to you guys, and then we will try to help you." When we left the meeting, everybody had a task, so that we would have to come back for another meeting.

Collaborative learning suggests a way of dealing with people that respects and highlights group members' abilities and contributions. It allows a sharing of authority and acceptance and responsibility among group members for the group's actions. The underlying principle of collaborative learning is based on consensus-building through cooperation by group members, in contrast to competition (Laal & Laal, 2012).

Collaborative learning allows people to come together and discuss and agree to a mutual goal (e.g., baseball game). Sarah was able to bring a juvenile police officer, the police chief, and five gang members together to discuss the feasibility of having a baseball game with the rival

gangs. Questions were asked and discussion and everyone's perspectives were included. Sarah wanted the gang members to have control over the planning, so she asked, "What do you want to do?" She also suggested that all the gang members sign a non-violence agreement. Sarah allowed the gang members to draft the agreement, helped revise it, and had all the gang members to sign it. Sarah also proposed that the gang members take control of some of the planning for the baseball game in future meetings. She allowed the gang members to have authority and share responsibility in the decision making. This was an incentive for the gang members to come back for future meetings. Overall, collaborative learning requires consensus-building and cooperation among all parties.

<div align="center">Collaborative Learning Develops New Ideas</div>

The previous interviewees discussed how collaborative learning in groups allowed individuals to solve a problem. Other participants in this study discussed how they used collaborative learning to gain knowledge and develop new ideas.  These participants include: (1) Sarah, (2) Jack, (3) Amy, (4) John, (5) Tony, (6) Kerry, and (7) Sandy.

<div align="center">Sarah</div>

Sarah mentioned her collaborative learning experience in the music ensemble, in which the music ensemble members were trying to experiment and produce a unique sound for a musical piece:

> We had one guy ask, "Is there anybody else that has played a percussion instrument before or do you want something more like a complicated rhythm, or do you want a simple rhythm?" We tried the song in different ways, and it was never the same way twice. Dan would say, "Yeah, that sounded good when you did that because you had a higher sound." That is how we adjusted which instruments we kept and which ones we

changed. There would be more balance and kind of a go along with what you felt comfortable or whether it was a complex rhythm or not.

   Everybody kind of said, "How does this go? Should we be doing like a backbeat?" We wanted the musical piece to be more like a Thai folk song. A couple people listened to some Thai music on the Internet and said, "Well, I kind of heard some of this Thai music rhythm. Is this rhythm okay to play?" Kerry was like, "Well, try it. See how you like it." And we did.

Sarah discussed another example of collaborative learning in the music ensemble:

> Kerry, the music ensemble instructor, looked at the members of the music ensemble and asked, "I'm looking at you guys. Well, what would you guys want to play this semester? How much challenge do you want? How much fun do you want?" Betty said, "How about if we did something more contemporary?" And Betty threw out [proposed] a song. Everybody was throwing out different songs, and Barb threw out *Rock Around the Clock*. And then people started talking about, "We could put poodle skirts on and do all these, you know, crazy things from the 1950s." We all kind of decided "no," we weren't going to wear poodle skirts because we would have other songs, but we let that hang [thought about it]. Others made suggestions, such as "Oh, we could do the twist, you know, while we are playing." And some people said, "All right." We might want something more challenging if we can really dance the twist and play the piece. So, everybody was kind of laughing and saying, "Yeah, well it's, you know, food for thought for the fall semester."

The "interactive mode" of collaborative learning refers to instructional settings that allow a group of learners to jointly develop knowledge and understanding beyond the information contained in given materials. Collaborative groups should provide and receive feedback, ask each other questions, propose arguments and rebuttals, and elaborate on each other's ideas. Incorporating other individuals' contributions leads to the potential of creating new knowledge that neither individuals could have generated by working alone (Menekse & Chi, 2018).

Sarah provided two examples of collaborative learning in the music ensemble. In both cases, members of the ensemble asked each other questions, either how to change or adjust the rhythm of the music (i.e., Thai folk song) or about what songs (i.e., *Rock Around the Clock*) they could perform and how they should perform them (i.e., do the twist and play their instruments). In

the second example, members were proposing arguments and rebuttals about what to wear. Other

members provided suggestions about dance moves. This exchange of ideas between members

involves giving and receiving feedback. This process also contributes to constructing new

knowledge for the group in order to make a better, informed solution for the group as a whole.

According to Sarah, the ensemble stated they wanted to think it over more during the fall semester.

<u>Jack</u>

Jack assisted by providing percussion support and student teaching to the members of the

music ensemble. He discussed his collaborative learning experiences within his music studies:

> It happens at least twice a week. A few weeks ago, it was a Friday. I was in here [in the practice classroom], Sue [a university music major] was here, and I think Dave [a university music graduate student] was here too. We were practicing, just practicing, and then, I was like, "Sue, let's go upstairs and jam." She was like, "Yeah, let's go." We took our steel pans up to the practice room upstairs and jammed. Dave had a rehearsal downstairs, but when he was done, he went upstairs, got his pan [steelpan] from his office, and then he came to the room and jammed with us as well. It's just weird what happened. Like yesterday, people heard the music going through the halls, and like other pan majors may have been practicing upstairs with us, studying or something, and then one of the pan majors just came to the practice room and came and started to play as well.

Collaborative learning is not limited to group discussions in the classroom. In the quote

above, Jack discussed about his collaborative learning experiences through a "jam session" of

instrumentalists. A collaboration of ideas can take place anytime and anywhere, especially when

musicians get together with their musical instruments.

Pun (2012) researched collaborative learning and creativity in students assigned to work

in small groups within a community of learners. Nearly all of them shared ideas, did things

together, and helped each other for the benefit of the group. A majority of them learned from one

another's talent and their creative thinking skills and interests were enhanced. The majority also

expressed self-satisfaction and accomplishment in their group work, made new friends, had fun, and enjoyed working in groups. Learners should be exposed to materials, experiences, and with situations through which they can inductively build their own knowledge.

Because dialogue, discussion, and interchange affect learning, teachers should allow for activities requiring dialogue and exchanges of ideas (Schcolnik et al., 2006). Regarding the university music students, Jack and the other students got together with little or no preparations, shared ideas (i.e., jam session), and constructed new kinds of musical ideas, knowledge, and themes without any instructor's supervision. These experiences helped them develop their musical talents, knowledge, and creative skills. The students also seemed to experience fun and satisfaction. In summary, students can benefit from being allowed to take risks and explore new ideas outside the formal classroom.

<u>Amy</u>

Like Jack, Amy also assisted by providing percussion support to the members of the music ensemble. She discussed her collaborative learning experiences within her music studies:

> I am personally playing a song on the cello [steelpan] at my recital. I am also working with three other percussionists. They are going to accompany me. We had to work out where they were going to play, and where they were going to stop. We worked out some ideas, and what grooves we want to play and stuff like that. For example, the conga percussionist suggested I stop at a certain place in my solo, and the other percussionists all drop out or play a phrase with me just to embellish it a bit. Through the exchanges of ideas and suggestions, I usually agreed, or I would specify something else that could be highlighted. In another example, a second percussionist, the drummer, suggested a groove or not, or where it should happen, or where it shouldn't happen within my solo. I agreed with his suggestions.

Amy provided another example of collaborative learning within a different steel band ensemble:

> In steel band rehearsals, there is a sense of discussion as the engine room [a special percussion group] works with the steel band. They [the engine room] figure out the groove, and they figure out what hits to play [during the musical piece]. Then the director of the steel band allows us [the steel band] to exchange ideas about what we should do here, and what we should do there. Sometimes he will dictate what ideas we should play here and there.

Social constructivism in education is enacted when learners are encouraged to interact and participate in their learning in order to construct, transfer, and share knowledge. Discussions help improve students' ability to test their ideas, develop their collaborative skills, improve their problem-solving skills, and deepen their understanding of what they are learning (Thinley et al., 2014).

In Amy's cello example, she explained that her cello steelpan solo involved the participation of other percussionists, and they suggested where they were going to play and where they were going to stop. They also discussed what kinds of grooves would be played in her solo. In the steel band rehearsal example, she revealed how members of the ensemble exchange ideas on how to perform their musical piece. Adult learners who interact and participate allow new knowledge to be constructed and shared. All the ideas being discussed by the participants in both examples were incorporated into the musical pieces and actually enhanced the musical performances.

John

John was a drummer for the band; he described his personal experiences of using

collaborative learning in a musical jazz trio:

> I work with the jazz trio, and I already know from the instrumentalist who is a vocalist, but then there is a piano player who also uses his left hand as a bass, you know. So, when I talk to those two, it is only if I am like, "Okay, where are we?" You know, sometimes I will stop and say, "Okay, are we on the same page as far as tempo?" I ask questions, and sometimes I will stop and say, "Is this supposed to be fast, slow, or what?" And then Danny [the instrumentalist] will play up something, you know, like, "This is how it should be played." "Okay, got ya." And if it is like Duke Ellington, you use a swing [beat], so I already know what to do with that. The only suggestions I like to throw in there are, like, different songs that other people are doing, and I ask, "Is there some way that you [the other instrumentalist] can or one of you can sing it?" I sometimes talk about, like, you know, "Here's some tune that you might want to look at." And I find it in a fake book [a book of other musical artists' sheet music] or something that I have at home. You know, a fake book is just a cheat sheet of chords and melodies, and I ask, "Do you think this tune will fit with us?"

Peer learning is a type of collaborative learning that involves students working in pairs or

small groups to discuss concepts or to find solutions to problems. Many instructors found that

through peer instruction, students teach other by addressing misunderstandings and clarifying

misconceptions (Chandra, 2015). By conversing with his fellow instrumentalists, John was able

to find out what they wanted with respect to performing the music (e.g., tempo). He was able to

engage in peer-to-peer interactions, talking with his band members to find solutions to problems

and to clear up any misunderstandings. He also tried to innovate, such as making suggestions for

introducing different kinds of music using a fake book. Collaborative learning allows everyone

to communicate with each other, make adjustments to the performance of the musical piece and

introduce innovative and creative ideas into the musical piece.

<u>Tony</u>

Tony does musical arrangements for the music ensemble. He shared his collaborative

learning experiences:

> Kerry and I exchange ideas on musical arrangements. For example, on one arrangement I did, she felt it was going to be too long. She suggested that I take out a couple of repeats, shorten one of the solos, and shorten the introduction. She just said, "We need to keep it to about five minutes for performance." And so that actually got me to streamline the piece a little bit. And I appreciate that because it actually was a little too repetitious. Kerry will also ask, "Can we change this?" She can give me her expertise on that. If I have a tempo that is too fast for maybe this level of people that are playing, you know, where it is going to be a panic situation. We might say, "Let's just shoot for a tempo that is more realistic." And so, I have done that, slow things down. At the same time, I can offer some feedback on some of her arrangements. I mean, we can all offer suggestions.

Tony also mentions about Kerry's concern that the ensemble members will be able to

play the music at a certain tempo before a performance:

> She [Kerry] will even say before a concert, "Is this tempo comfortable for everyone?" And if three people say it's not, then she will actually slow it down a little bit more. And so, there is a lot of give-and-take within a music ensemble. I mean there is interaction that is going on.

Tony discusses how sometimes he will not always make changes according to Kerry's

requests:

> Sometimes when Kerry and I work together, we will refine my work. The issue might pertain to why a song has 32 measures. I would say, "Well, somehow it is really important." So, Kerry asks, "Will you put half that much?" Well, you know, so 32 measures will go to 16 measures. If she just says change this, I don't always just say, "Okay, I will change it." Especially if it is a song I wrote, and I feel strongly about a section that might get eliminated, and I will just come back [reasserting his position], and we are both pretty amicable about that.

Tony goes on to mention about the collaborative learning of two famous song artists.

> I mean, look at Simon and Garfunkel or all the famous songwriters. Without those two together, you don't have that magic. There are two different styles of music, and you are trying to combine [them] into one. There is going to be give-and-take. There are adjustments, tweaking, and all that. But something good comes out of it.

Researchers in one study discovered that through group work, students engaged in interaction, information sharing, and idea negotiation to achieve consensus. Idea exchange through discussion and communication helped resolve disagreements among classmates or overcome any challenges during collaborative group work (Kuo et al., 2017).

Through the various discussions and exchanges that took place between Kerry and Tony, adjustments and changes were made in Tony's musical arrangements. The overall objective of this collaborative learning is to allow the musical arrangement to fit everyone's needs. For example, sometimes the tempo of Tony's musical arrangement might be too fast, so Kerry asked him to slow it down. However, Tony stated that he will not always give into Kerry's requests if he feels it is necessary to keep the music. Overall, Tony's examples (e.g., adjusting the tempo of music ensemble, Simon and Garfunkel, etc.) illustrate that collaborative learning requires discussion, idea exchange, negotiation, and give-and-take to achieve consensus.

<u>Kerry</u>

Kerry discussed her collaborative learning experiences related to her music work:

> I worked on a project where I brought indigenous Thai instruments and Thai music and combined their music with the steel band. This arrangement consisted of a Thai traditional piece, a Thai folk song, utilizing a steel band, performed in original Thai style and then bringing in Calypso style, which was an indigenous style of music of Trinidad and Tobago and then mixing those styles together. I created the musical arrangement. I also met with my Thai counterpart, and we discussed my idea of this project. He liked my idea, and we just went with it. He suggested featuring soloists in the arrangement. He also

said there were some original or traditional instruments that he could incorporate, and he could perform those instruments in the performance. My Thai counterpart also provided input at times about the project.

Kerry provided another example of a project using collaborative learning:

I wrote a musical arrangement for the steel band over the summer of 2018. During the fall semester, a graduate music drum student, Troy, approached me about that arrangement. He asked if I could finish writing it because he would like to perform it. He brought the idea of creating a professional visual and audio video of the performance because a lot of times steelpan performances are not recorded professionally. I am glad he brought that idea [up] because we ended up submitting that video to the Percussive Arts Society International Convention, and we got to perform at the conference. I wrote the last movement specifically for myself and Troy. It was Troy's idea of introducing and helping [with] the video portion. He brought the idea and we hired a professional videographer and audio engineer to do the recording.

Collaborative learning involves with creative thinking, and creativity involves a collaborative process to generate new ideas through the results of social processes taking into account both group interaction and efficiency in group work (Astutik et al., 2016). Creativity can also be thought of as raw ideas, new ways of looking at things, new methods, or new products that possess value (Kushwaha & Tewari, 2019).

Kerry mentioned that she worked with her Thai counterpart to combine a Thai folk song with a Calypso style. She discussed her musical ideas with her Thai counterpart and also received ideas from him. Kerry also worked with the music graduate drum student, Troy, and combined her musical arrangement with his video idea. In both examples, Kerry worked with other individuals and discussed how they could combine existing ideas to create something new. Collaborative learning is a social process that often uses group interaction to combine ideas into creating a new final product. Through social interactions, Kerry was able to use other people's ideas to create something new, such as a new musical arrangement or a music video.

<u>Sandy</u>

Sandy shared her collaborative learning experiences in the music ensemble. Her first example described how she used and received critiques as a way of improving her music learning and practicing:

> The way we have learned a piece of music was to break them down into smaller components and try to play them, and we would then get a critique about rhythm, timing, and whether our notes were struck cleanly [on the steelpan] and sounded clear. And the critiques would come from Kerry or other music graduate students or music graduate assistants or sometimes from other students in the ensemble. You would work on a section, practice it several times, achieve some improvement, and then go on, and do the same thing until you had completed your song. You also have students provide feedback about what they thought was difficult about the song, so that the instructors would be better able to understand how to help them improve.

Collaborative learning is where two or more people learn something together, such as capitalizing on one another's resources and asking one another for information. Collaboration and the sharing of information can make learning more efficient (Blum et al., 2017). Sandy described about how she and other music students in the ensemble were learning a piece of music, they would receive critiques or feedback from Kerry, graduate students, graduate assistants, and other students in the ensemble. At the same time, the students in the ensemble provided feedback to the instructors about the difficulties of the song. This helped the instructors understand the students' difficulties. In Sandy's example, collaborative learning allowed to be shared between members of the music ensemble and Kerry, the music graduate students, and the music graduate assistants. The critiques helped the ensemble members with their practicing, and the feedback to the instructors helped to understand what difficulties the students were encountering with the music, thus making learning more productive and efficient.

Sandy also explained how she worked with other ensemble members to create novel sounds:

> There were times that we worked tougher to create novel sounds from things that were not considered instruments. We used a variety of different, and some of them were everyday objects. I was playing a pie pan, and it worked. It was a question from Kerry of what new things could we use in novel ways in a percussion section in the center of a piece of steel band music to do something different. We all participated, and we all had different things. We had spoons, we had pie pans, and we had shakers. Each person contributed that unique component to the sound produced in the ensemble. In addition, people came up with their own ideas of what would possibly make the kind of sounds we were looking for. We had spoons, and there were different ways you could make sounds with spoons. For example, tapping them against your leg, tapping them against other wood surfaces. We tapped them with cowbells and tapped on the cymbals and drumsticks. We did try different rhythms, but we were trying the rhythm that complemented the keys of the musical piece.

Learning is not only a transfer of knowledge from one individual to another; it is a transformational process in which new ideas, experiences, and personal judgments are integrated into the creation of new knowledge (Mukan et al., 2017). In Sandy's second example, she discussed how members of the music ensemble used everyday objects (e.g., spoons, pie pans, etc.) to produce novel sounds. She mentioned that people even came up with their own ideas of what would contribute to the musical piece. This process involved taking new ideas (e.g., sounds of everyday objects) and transforming everyone's contribution into a new kind of knowledge (e.g., novel sounds).

## Informal Learning Fuels Collaborative Learning with New Ideas

The second theme, *informal learning fuels collaborative learning with new ideas*, is a field of adult learning in which adult learners learn from other adult learners outside the formal classroom. It supports collaborative learning because learning can occur at anytime and

anywhere. As previously discussed, informal learning is where formal education no longer comprises the majority of our learning. Instead, learning occurs in a variety of other ways, such as personal networks and through completion of work-related tasks (Siemens, 2005). Informal learning is considered to be self-directed, where students have flexibility in what and how they learn. It is learning that students undertake without necessarily being explicitly asked to engage in it (Lai & Smith, 2018).

Informal learning is important because it allows adult learners to learn new concepts and ideas outside the formal classroom. These ideas can be used in creative and innovative ways. Many people broaden their horizons and perspectives by engaging in various informal learning activities, such as reading books, discussions with others, and trying out new experiences.

The following section discusses the individual experiences of certain music ensemble members who provided insight into their individual experiences with informal learning. The following individuals are: (1) Betty, (2) Dan, (3) Charlie, (4) Jack, (5) Amy, (6) John, (7) Sarah, (8) Tony, (9) Sandy, (10) Molly, and (11) Kerry. I also include my observations of informal learning activities engaged in by the following music ensemble members: (1) Charlie and (2) Jackie.

<u>Betty</u>

Betty shared her professional work experiences, and how she used informal learning in her workplace:

> Originally, I started out in the office, seeing patients as an advanced practice nurse starting in 2001. We [the nurses] were able to see patients independently and bill independently from the physician. There were a lot of rules and regulations that had to be followed in order to bill appropriately, but it was the very of beginning of that type of practice. So, it was fun to be on the ground floor. I love seeing patients. I love teaching

patients, and, eventually, I began seeing patients in the hospital as well because you do get a different perspective. I also needed to pave the way--being that person who was the non-physician but giving orders directly to nursing staff as well as helping patients understand what I was capable of doing.

The workplace (e.g., medical clinic) offered the medical workers many opportunities to learn new things on the job (i.e., on the job training). In Betty's case, working in a medical clinic requires learning new medical concepts and procedures and dealing with physicians, nursing staff, and patients. She stated that she loved seeing patients, loved teaching patients, and saw patients in the hospital. She also said she got a "different perspective" into her work experiences. Overall, she learned many new things from her job and her workplace. As previously discussed, informal learning can include problem-solving, observing, and working with more experienced co-workers, informal chats, and moving between jobs within the same work organization (Halliday-Wynes & Beddie, 2009).

Betty also discussed how she used informal learning in the music ensemble:

I watched videos on YouTube of other steel bands. That was really helpful to me. You got to see other people in action. The only other steel band I have ever seen was NIU. I would watch videos on YouTube, not necessarily of the songs that they were going to play, but how do they act while they are playing? Are they bouncing around? Are they very strait-laced? They dance a lot. Are they looking at the music? Are they playing from memory? A lot of the steel bands that I saw on YouTube, especially from the ones from Trinidad, don't use music [sheet music]. There is no music. It is all from memory.

Free-choice learning occurs during visits to museums, when watching television, reading newspapers, talking with friends, attending plays, etc. It tends to be non-linear, it is personally motivated, and it involves choice on the part of the learner as to when, where, with whom, and what to learn (Falk & Dierking, 2018). Betty stated she watched YouTube videos of other steel bands and focused on how the performers behaved while they were playing. Certain questions she asked herself were, "How do they act when they are playing?" "Are they bouncing?" "Are

they looking at the music?" Watching the videos allowed her to learn how she should perform in

an actual performance. The videos provided her additional learning outside the classroom and

helped her improve her musical performance. It was her choice and personal interest to watch

those videos.

Betty also explained how she learned through discussions with her brother-in-law who

was a musician:

> I talk to my brother-in-law who is a musician. He does not play the steel drum. He plays
> bass guitar in a band, and we talked a lot about how he practices and makes changes in
> what he is doing. He talked about when he was practicing by himself, he said he would
> play a song in a certain way. But when the rest of the band members get together, they
> are practicing together before they go out on a tour. Sometimes he has to change what he
> did when practicing alone. He was hearing what other band members were doing, but
> when you were practicing by yourself, you couldn't hear the other cues (e.g., when to
> come into a measure and play). You get into these habits when you practice by yourself
> that you can't do when you are playing with other people because of the difference in
> cues, which I didn't think about, and it is very true. When I would practice by myself on
> Friday afternoons, sometimes I would gloss over certain things that I thought I knew, but
> when we were playing as a full group, I am like, " Oh, I guess I shouldn't be going over
> this because this isn't what I thought." I learned a lot talking to my brother-in-law.

Narratives and stories are two tools individuals use to make sense of their living

experiences in informal learning. Through narratives, humans are able to draw connections

between different experiences and develop a clearer understanding of those experiences.

Narratives are deeply connected to our understanding of self and identity (Yelich Biniecki &

Donley, 2016). Betty described the story of her brother-in-law practicing alone and practicing

with others. She shared that her brother-in-law stated that when he practiced alone, he practiced

in a certain way. When he met his fellow band members and practiced together, he missed

certain cues that other band members played in a musical piece. Sometimes an individual's

interpretation of music can be different compared to other group members. Betty admitted that

she also encountered the same situation when she was practicing with her ensemble members.

Narratives helped Betty draw connections between different experiences (e.g., brother-in-law's

practice experience) and helped her develop a clear understanding of practicing alone and

practicing with others.

I asked Betty how informal learning helped her collaborative learning activities within

the music ensemble:

> It helps the confidence, the self-confidence in what you are going to do, what you are
> prepared to do, how you carry yourself while you are doing it, and then once you have
> that base of confidence, then you are able to better collaborate with other people.

Betty mentioned that informal learning gave her self-confidence and helped her to better

collaborate with other people. She had many questions while watching YouTube videos and for

her brother-in-law regarding music in general. Good questions often open up a dialogue in

which productive learning takes place (Braund & Lelliot, 2017).

## Dan

Dan discussed his informal learning experiences related to his work:

> We have a plain projector, and it basically projects whatever the professor is using on the
> computer or wants to display to the class. And they set up a workstation, or we got a
> classroom podium. So, the professor is pretty much tied to one space and sometimes, the
> podium is off center. If the professor does not have equal distance with the students, and
> the research I read last, ... most recent, it said, "If a student is more than 12 feet away
> from you, that's when they start losing engagement in the class or lesson."

Dan, like Betty, discussed his informal learning experiences from his job and workplace.

Dan travels within his university and upgrades university classrooms with the latest state of the

art technology. He mentioned research he read pertaining to his work. Improving one's work

requires on the job training, which for Dan likely includes reading about the latest trends in

technology. As previously mentioned, many small business owners and managers are likely to

learn informally or incidentally. For example, discussions often take place with suppliers and

customers and at trade shows rather than at formal training courses (Halliday-Wynes & Beddie,

2009). In order for Dan to understand the current trends in his industry, he needs to read about

currently available technologies. He may have to discuss with his suppliers and customers, as

well as attend trade shows to learn more.

Dan also discussed his informal learning within the music ensemble. He described how

he is making a digital steel pan, so he can practice at home with it:

> I am trying to make a digital steel pan now. I want to make a digital one, so that I can
> practice at home. You make one out of cardboard, or practice on the app on my iPad, but
> if you have an actual size that is digital, then I can practice it. Sometimes, Kerry gives us
> music files for the song to listen to and practice with. I can put these music files in the
> digital steelpan to listen to and practice together with. In order to make a digital steel pan,
> I almost read all technical books. This one I actually printed off the Internet.

Since Dan is an informational technology (IT) manager, he has ongoing knowledge about

computers and electronics. He also had a need to practice with a steelpan at home, so he decided

to build one. He combined his knowledge of electronics with his interests in the music ensemble.

The literature review showed that small business owners are likely to learn informally or

incidentally. Dan stated that he read technical books, and he printed some off the Internet in

order to make his digital steelpan. In summary, Dan's informal learning helped him to improve

his learning and practicing of his ensemble music by building a digital steelpan to practice with.

<center>Charlie</center>

Charlie described his informal learning experience related to the music ensemble:

> Have you ever seen the Pan Contests (steelpan contests), the Pandemonium steel band
> competition held in Trinidad and Tobago? Those are great, and if you watch those for any

length of time, it is like, wow. You just get a different perspective on the instrument and the culture that comes with it. That is a learning experience in itself. I watched these competitions on YouTube. I learned the steel pan history, such as the evolution of the playing style. You can watch from the late 80s till today, and you can see an evolution in the music.

Charlie also described how he learned music theory while attending his daughters' violin class:

I am a percussion guy. My daughters are into the violin. It has been fun, I mean, for me, it is just watching it from a distance, but I have been learning a lot of music theory and stuff that I never got in school. I go to their classes a lot. By attending my daughters' classes, I started to learn how to read music (e.g., flats, sharps, key signatures, etc.). As a percussionist, you don't read like flats, sharps, notes, and things like that. I can sight read rhythm fast enough, but I can't sight read the musical notes.

Informal learning is considered to be self-directed, and students have flexibility in what and how they learn. It is learning that students undertake without necessarily being asked explicitly to engage in (Lai & Smith, 2018). Charlie discussed how he watched YouTube videos which showed the evolution of the steelpan playing styles. Watching these videos helped him to expand and broaden his knowledge in the playing techniques of the steelpan. This knowledge can help him expand his own playing techniques as well. Charlie also stated that he learned music theory while attending his daughters' violin classes. He stated he was originally a percussionist. He knew how to read and rhythm, but not reading music, such as flats, sharps, and key signatures. By attending his daughters' classes and learning music theory, Charlie was able to expand and broaden his musical knowledge in order to be a better performer within the music ensemble.

I also include my personal observations of Charlie's informal learning experience:

Prior to the beginning of class, Charlie remarked that Mercy's music was very organized. He stated that she used markers to highlight various places on her sheet music. Charlie stated he just used pencil markings. I suggested to Charlie he should learn and adopt Mercy's marking system.

Informal learning arises in situations where learning may not be the primary aim of the activity, but it is activated by some anticipated or existing problem situation that requires resolution (Manuti et al., 2015). Charlie happened to see Mercy's music, and he remarked that it was very organized with highlighted places on her sheet music. Her sheet music somehow reminded him that his pencil marking system could improve if he adopted her marking system. The situation just happened, but it was quite valuable to learn such new information.

Jack

Jack discussed his informal learning experience within his music studies:

I get musical ideas by drawing inspiration from other cultures. So maybe, whether it be African, Indian, Chinese, Japanese, or just western music even. I will listen to them through social media (e.g., YouTube), and I try to draw inspiration from them. I take those ideas and incorporate them into my own musical works.

Free choice learning is learning that is guided by the learners' needs and interests. This learning is what people engage in throughout their lives to find out more about what is useful, compelling, or just plain interesting to them. It is intrinsically motivated and largely under the choice and control of the learner. Examples include surfing the Internet, participating in book discussion groups, watching nature documentaries on television, checking out books at the library, and visiting museums and parks with friends and family (Dierking & Falk, 2003). Jack stated that he listened to many kinds of music from different cultures (e.g., African, Indian, Chinese, etc.) through YouTube.  He chose what he wanted to learn because of his personal

interests. Listening to various kinds of music helped him to expand and broaden his knowledge within his music studies. Expanding his knowledge allows Jack to become a better music student and a more effective teaching assistant when he assists members in the music ensemble.

<u>Amy</u>

Amy discussed her informal learning experiences within in her own music studies:

> There is a huge social media thing going on where people will post short clips or short lessons online. I usually look at those and try to emulate what they are doing, or I just search the Internet to find a song to play to rap out a groove or learn a new groove or something like that. Examples of social media that I use are YouTube and Instagram.

I asked Amy how her informal learning helps or contributes to her collaborative learning in the music ensemble:

> It is also a lot easier to get to access first of all [knowledge and information] because I always have my phone with me. So, I can just log on whenever I want to. Personally, it is a lot easier for me to learn on my own than have someone explain something to me, and I can go at my own pace if that makes sense. If I want to learn faster than a group or a classroom would learn, I would be able to do that. If I learn something really quickly, I can move ahead whereas if I was attending a class, I would probably be kept back by people who cannot learn it as quickly.

In one study, researchers discovered that students used social media for a number of purposes: (1) managing group work (finding partners, forming groups, sharing tasks); (2) generating ideas; (3) communicating with peers and teachers (group discussion, asking questions, receiving feedback); (4) documenting and communicating progress; (5) sharing project outcomes, such as presentations; and (6) sharing information, resources, and links (Greenhow& Lewin, 2016). Amy used social media (e.g., YouTube), like the research study's example, to obtain new ideas, such as learning a new groove. She also stated accessing social media is faster and easier to obtain new knowledge than participating in a formal class.

Accessing information from social media allows her to broaden and deepen her musical

knowledge and also allows her to contribute to collaborative learning in her musical studies and

within the music ensemble.

<div align="center">John</div>

John discussed his informal learning experiences in the music ensemble:

> I read about other artists, how they approach, let's say, just drum sets and cymbals. There
> was one of the most philosophical drummers. He was also a lyricist for the band, Rush,
> who passed away, Neil Peart. He was changing with the ideas of what the other two
> [band players] were going toward. He added more gizmos to the set, like some electronic
> gear. The music was changing because they wanted to evolve a better array of percussion
> for him to play. He was using a lot of different styles of beats, like more straight
> pounding.  Kind of the 60s or the 70s feel or the disco feel.
> I also like listening to, you know, like a good type of player backing up, sitars,
> you know. Let's just say an East Indian, in the East Indian music, like ragas. I like to
> listen to Ravi Shankar. I also listen to rock and blues, jazz, some current, some in the
> past. I like classical music, you know, that's just like a whole different level of thinking
> on that, you know. I listen to these kinds of music and artists through the Internet (e.g.,
> YouTube).

A student-centered culture of learning consists of one of the following principles:

learning as a constructive process or a learning process that takes place with individual

interpretation and construction of meaning and occurs either as a result of connecting new

experiences with existing knowledge or expanding existing knowledge (Wulf, 2019). John said

he reads and listens to drumming artists, particularly Neil Peart. He also mentioned that he

listens to various kinds of music, such as East Indian music, rock, and blues.  John studies his

musical interests because he is trying to connect to new experiences and expand his existing

musical knowledge. Overall, studying expands one's knowledge and allows an individual to

contribute to collaborative learning more effectively.

Sarah

Sarah discussed her informal learning experiences, and how those experiences helped her

in the music ensemble:

> I watched yearly steelpan competitions they have in Trinidad. I watched some videos of
> the contests there. I would search band songs on the Internet and listen to some of those
> that weren't Calypso or the typical kind of stuff that would be more like band and jazz. I
> also read some stuff in the Spring semester, such as the design of the steelpan. And I read
> some biographical stuff on the Internet about a founder of the NIU steel band.
>      Although I have a bachelor's degree in music and I understand music theory, I
> learned some of the culture of Trinidad.  I was talking with some of the students that have
> been helping us [music ensemble], and I was amazed that we have Tara [music graduate
> student] assisting us. She came in last semester and she played the percussion with us.
> She majored in music composition and has written accomplished works in Trinidad and
> in Antigua. You know, a lot of compositions of her own arrangements.

Sarah explained how informal learning helped with music playing and with collaborative

learning in the music ensemble.

> It [informal learning] helps me to understand much more. For example, the drums
> [steelpan] are stainless steel, you know, they are metal. So, you think that you could
> probably hit them pretty hard. But I did learn how easy it was to knock them out of tune.
> You need to find the sweet spot on the drum of where you should be hitting and not hit
> hard. You also need to know how to hit with the sticks. You really have to be quite the
> craftsman to be able to make a steelpan drum. In Trinidad, they hit them a lot harder than
> we do. The drums are made a little different in Trinidad than they are here.

One reason why adult learners engage in informal learning is that they are interested in

acquiring knowledge, a new skill set, or obtaining a credential. People also acquire knowledge

from their various social environments through observation of others. Mobile technology via

small portable computers, usually a smartphone or tablet, has created new ways for learning to

take place (Van Noy et al., 2016). Sarah mentioned that she watched videos on the Internet to

understand other forms of band music, and how the steelpan was designed (mobile technology).

She also said she learned from a graduate student (Tara) who practiced with the music ensemble

(observation of others). Sarah's purpose of learning the steelpan was to understand where to hit it

correctly and not knock it out of tune, as well as stick techniques. Overall, acquiring this

knowledge helps her to understand her musical instrument and to further expand her

understanding of the steelpan's design and other kinds of band music. By expanding her

knowledge, she can contribute more to the music ensemble and to collaborative learning.

<u>Tony</u>

Tony shared with me his informal learning experiences related to the music ensemble. He

helped the music ensemble by arranging mainstream musical pieces for steelpan band practice

and performances. I asked him about how he engaged in informal learning activities:

> Just keeping myself sharp and keeping myself informed. I mean, I am also a really strong
> believer in, uh, in self-help. So, I have, over the years, I have done quite a bit of reading. I
> have done a lot of self-help books as far as motivational people like Tony Robbins or
> Napoleon Hill, but I still read a little bit every day. It's my goal, but, you know, I do
> books and reading.
> 
> For the music ensemble, I am doing an arrangement now for the steel band. It is a
> challenge for me, too, uh, because you know, I didn't use to do that, so now it is another
> form of innovation, too. It is a software that you use which is called Finale. It is really a
> learning curve for me. Kerry (music ensemble instructor) helped me kind of get that
> going when I first came into the steel band two or three years ago. So, now I can do the
> arrangements myself. She does kind of help me with them, just playing through them.
> She actually uses Finale, and I use one called, uh, Forte, which is similar. I don't want to
> say it is kind of a lesser version, but it is kind of a simplified version of it [Finale]. She
> does help me with certain, you know, parts of the song to make the music fit.
> 
> I listen to quite a bit of either satellite radio or Spotify. My biggest hobby is that I
> keep Pandora and Spotify on quite a bit. I will let it suggest things for me. I may
> absolutely hate it, or I might just click it on immediately. I love surfing the Internet for
> new music. I also have been taking graphic design classes. I have been taking marketing
> classes still because I am still doing some other stuff besides music.

Free learning and discovery learning are effective methods of acquiring knowledge. The

Pareto principle, according to Zhang (2019), states that only 20% of knowledge in life comes

from classroom teaching or work, while 80% comes from self-study and communication with others. A final characteristic is that informal learning requires a place to support individual dialogue, cooperation, and sharing. Tony stated that he reads a lot of self-help books like Tony Robbins and Napoleon Hill. He also stated he uses a software called Finale and talked with Kerry about how to use that software. He also listens to many kinds of music through the Internet, such as Pandora and Spotify. He also takes graphic design and marketing classes. Informal learning requires the use of free learning and discovery, in which adult learners use many informal means, such as reading books or talking with others to acquire knowledge. The classroom does not answer every question that an adult learner has; therefore, he or she needs to find answers by reading books or asking other people questions. Acquiring this knowledge helps Tony to expand his knowledge base and make positive contributions to the music ensemble.

Tony also added how his informal learning contributed to collaborative learning within the music ensemble:

> Informal learning allows you to get more prepared on your own. You learn your part by yourself, so when you plug into other people, you might be help them by being more confident. You are playing, and they can follow you. Different people have different talents. One person named Steve is the trumpet player who brought his trumpet and played with the ensemble. This is an example of collaborative learning that we didn't have before. Different people with different instruments, different things, or different background they bring into this music setting.

A student-centered culture of learning consists of learning as a cooperative process or learning that occurs through communication by engaging with others (Wulf, 2019). Tony explained that informal learning allows an individual to prepare and be confident. He or she might meet people and help others especially within the music ensemble. Learning consists of

bringing different people with different talents and different backgrounds together where collaborative learning can take place.

<div align="center">Sandy</div>

Sandy discussed her informal learning experiences, and how they related to the music ensemble:

> When I started, I did not remember how to read music. I had to put a lot of effort to learn to recognize the notes and to read music, which I finally more or less have done. A lot of resources I used were Internet resources, such as looking at scales, practicing scales, and Molly gave me a book on music theory. This workbook allowed me to answer questions and draw musical notes. She also gave me a book of blank scales, and I drew musical notes on that. I was trying to use those things as supplements to the actual in-class practicing and rehearsing with the group (ensemble).

Sandy also mentioned how her informal learning helped her musical studies and collaborative learning within the music ensemble:

> It made me better able to play the part of the music I needed to play. So, it made me a better contributor to the ensemble.

A student-centered culture of learning consists of learning, which is self-regulated, meaning learners are able to decide for themselves when, what, and how they learn (Wulf, 2019). Sandy discussed the ways she studied musical theory. She looked at Internet resources, a music theory book that Molly gave her, and other musical workbooks. Sandy wanted to improve her musical theory background, so she could become a competent and better contributor to the music ensemble. Sandy decided when, what, and how she was going to learn musical theory.

<div align="center">Molly</div>

Molly discussed her informal learning experiences within the music ensemble:

I helped create the music ensemble. I brought a large number of students to play steel pan including Sandy. In the process of doing that, I wanted to learn as much as I could. Did I read books? Yes. I wanted to study music theory, but at our university, you are not allowed to do music theory unless you are a music major. There was no class for music theory. So, I went to an instructor of the ukulele ensemble. I asked him, "Can you teach me music theory?" So, I started taking music theory classes from him.

Molly also added how informal learning helped her collaborative learning in the music ensemble:

It gives you a much broader context than you could possibly get in a class. It gives more tools for your musical toolbox.

Informal learning is organized as: (1) being interactive and embedded in meaningful activity; and (2) where guidance is available to learners and their colleagues through social interaction and the structure of activities (Rogoff et al., 2016). Molly stated at the time she helped create the music ensemble, she wanted to learn musical theory. In addition to reading books, she asked the instructor of the ukulele ensemble to teach her musical theory. Molly's approach to informal learning was more interactive, and she received guidance from an instructor through social action. Her last remark was that her informal learning gave her more musical tools to work with, especially in collaborative learning.

## Kerry

Kerry discussed her informal learning activities related to the musical ensemble:

The biggest thing I can think of is traveling to Trinidad and Tobago where steelpans are from and meeting people from that country to hear different stories and learn about the history of how they teach, how they learn music, and how they play. They don't write sheet music. They come up with musical notes, and then they would teach other people orally. I think that was the biggest influence that I had outside of the classroom when it comes to learning the steelpan. I definitely learned different arranging or composing techniques from the people of Trinidad and Tobago. I also read a lot of books, dissertations, articles, and the Internet.

Kerry also discussed how her informal learning activities influenced her collaborative learning within the music ensemble.

> That [informal learning] definitely helps me to work with people who don't have a musical background. So, I am able to understand how people learn outside our current classroom setting.

A student-centered culture of learning means that learning content is situational and that learning always occurs within a specific context and is therefore linked with that context (Wulf, 2019). Kerry discussed that she travelled to Trinidad and Tobago to learn how their people teach, learn, and play steelpan music. She also stated that they do not write sheet music but are taught orally. Her learning on how these people learn music without sheet music helps her to understand how she can teach certain members within the music ensemble who cannot read music. This knowledge empowers her to find alternative ways of teaching music without the traditional sheet music format.

<p style="text-align:center">Jackie</p>

This is my personal observation of Jackie exploring musical instruments in the ensemble room prior to the commencement of class. I believe this method was Jackie's way of informal learning:

> Jackie was looking at a special percussion instrument. It was three white, plastic bottles tied together using white plastic binding. Each plastic bottle contained little seeds or stones. When a person shakes the three plastic bottles tied together, it makes a "shaking" sound, which is quite useful as background percussion music. Jackie also looked at other percussion instruments as well and started to experiment with them.

Informal learning may be undertaken by engaging with others or starting some sort of self-initiated study. Most of this learning is unplanned and occurs by chance, naturally, as needed

(Manuti et al., 2015). I believe Jackie had a curiosity of what the white plastic bottles were used for. She experimented by shaking the bottles. She also looked at other percussion instruments and experimented with them. Informal learning allowed her to discover new sounds and techniques. It added to her current knowledge base and expanded and broadened her musical background. This new knowledge will help her contribute to the music ensemble especially if she needs to participate in collaborative learning with others.

<div align="center">Cooperative Learning Helps Others to Learn Difficult Ideas</div>

The third theme of the study is that cooperative learning helps others to learn difficult ideas, which allows students who actively work and learn together in small groups to accomplish common goals in a mutually helpful manner (Davidson & Major, 2014). This process encourages students to seek outcomes that are beneficial to everyone. Through cooperative learning, students discuss subject material with each other, help one another understand it, and encourage each other to work hard. Individual performance is checked regularly to ensure all students are learning and contributing to the group (Johnson & Johnson, 1999).

The following section discusses the personal and professional experiences of music ensemble members as they related to their experiences of cooperative learning. Each individual explains how he or she used cooperative learning within and outside the music ensemble classroom. I use the literature review to support my understandings of human interactions. The individuals who discuss their experiences are: (1) Betty, (2) Charlie, (3) Jackie, (4) Sarah, (5) Jack, (6) Amy, (7) Molly, (8) Sandy, (9) John, (10) Dan, (11) Tony, and (12) Kerry. Finally, I include cooperative learning experiences I have observed in the classroom.

Betty

Betty discussed her cooperative learning experiences within the music ensemble. She

commented on how Jack, a university music student, helped her in playing the steelpan

instrument:

> So, he [Jack] will stand behind you, and he will suggest different ways of, um, using your
> hands. So, in other words, all the notes on the left-hand pan do not have to be played with
> your left hand, or all the notes on the right-hand pan do not have to be played with your
> right hand. He has more experience than I do. I take that seriously.

Betty talked about the benefits of working within a group:

> Especially if I am working with people who know what they are doing, in the steel band,
> I mean, there are people who have been it in for quite some time, and who, like Sarah, I
> mean she really knows how to read music. I can follow her. I can ask her questions when
> I am not sure of something.

Betty discussed working with a group to practice together:

> A group of us began to practice independently, but we would gather together on Friday
> mornings in the steelpan practice room. We could go in, and so it was usually Jackie and
> I. Mercy and sometimes other people would come in and out of our group if they were
> available on Friday mornings. I think, especially for Mercy, that was really a good thing
> because she was not embarrassed to ask questions of us because we were colleagues, we
> were equals. We were not running the show, and that was fun. It was helpful.

Betty talked how cooperative learning influenced collaborative learning:

> I think collaborative learning is where everyone is pretty much at the same level as far as
> whatever task they are collaborating about, whereas cooperative learning, there are
> different levels of understanding about the same topic. If you are using cooperative
> learning to help everybody to get to the same level, then they are better able to do
> collaborative learning.

Students who need help completing assignments are instructed to ask their peers for

assistance. Students are expected to interact with members of their group, share ideas and

materials, support and encourage each other's academic achievement, orally explain and

elaborate concepts and strategies being learned, and hold each other accountable for learning and completing the assignment (Johnson et al., 1991). Betty received instructional help from Jack, a teaching assistant, on how to play the double steel pan drums. She also mentioned she can receive help from musical ensemble members who have more musical knowledge and experience. Betty stated that she and other ensemble members would gather in the steelpan practice room, practice together, and ask and answer questions. Cooperative learning allows students to interact and get assistance from their peers rather than their instructor. Sometimes the instructor is not available, so asking for help from music assistants or other knowledgeable students is an effective way to get answers to questions and learn new techniques and ideas. Students also receive support and encouragement in this way.

Betty also discussed that cooperative learning allows everyone with different levels and backgrounds to get to the same level of understanding. After that understanding is reached, group members can freely participate in collaborative learning.

<u>Charlie</u>

I asked Charlie about his experiences of cooperative learning in the music ensemble:

Well, for me, it helps [with] reading music because I am always stealing notes from, uh, Jackie. I play second tenor steelpan in my instrument section. I talk to Betty sometimes. I don't read the notes below the lines, and so, I am always trying to, you know, [ask] "Hey, what do you use for this, or how do you play this?" We work together. And we are kind of at the same level that way, so, that works very well. If I get flustered in some way, like, "Oh, I don't know where I am at in the music, and, so, I will stop for a while." And it is tough because then you can't really help. You know, I am trying to find out where I am at again in the music. And so, for me, once I get stuck like that, I have to wait until I get to a point where I can actually play again, where else I really can't follow on. So, that kind of help is, you know, you got to play along with your partners. So, if I see them hitting "G," I know I hit the "G," you know, and it is a good one.

Charlies told me how cooperative learning influences collaborative learning:

Having the social ability in cooperative learning, you can ask anyone any question. So, that makes it important, you know. If everyone feels comfortable with everyone else, you don't have to feel stupid for not knowing whatever it is, you know.

Students learn more by doing something actively than by simply watching and listening (e.g., lectures). Furthermore, cooperative learning enhances learning because: (1) weaker students who work individually are more likely to give up when they get stuck, whereas by working cooperatively, they keep going; (2) stronger students find gaps in their own understandings of academic material and of the weaker students' understandings, and allowing them to help weaker students by filling in the gaps; and (3) students working alone may delay completing or skipping assignments (Abdulahi et al., 2017). Charlie discussed his difficulties in reading the music and playing the right notes on his second tenor steel pan instrument. He stated he became lost while reading his music and playing his instrument. He would then follow members in his section to make sure he was playing the right notes. Cooperative learning allowed Charlie (a beginning student) to learn from more knowledgeable students, such as Jackie and Betty. It provided him the encouragement to keep going and to learn how to read his music and play his instrument better. Charlie also stated that cooperative learning allowed him to feel comfortable and ask questions to anyone; such a level of comfort does not make him feel stupid when he does not know the answer to a question. In summary, if Charlie did not have the support he needed, he might have given up. It is important that students receive assistance when needed, especially when the classroom instructor is not available.

<div align="center">Jackie</div>

Jackie told me her experience of cooperative learning in the classroom:

There doesn't seem to be a whole a lot of time for talking and asking questions to others during class time. We don't have, like, practice sessions, so I get there, and then we start class, and it would be disruptive if I were to, you know, start talking to somebody about, you know, whether I can understand it. I think it [the class] could use an extra 20 minutes for practice and that sort of thing because I think then I would ask people and maybe participate in a different way. You always just get in there [the classroom], you know, the door would be locked if you get there early, and then we just go right into it [starting class]. So, there was one night when the instructor wasn't there, and there were only a few people that stayed [after class], and I felt like I learned a lot of stuff asking people then when it was not a structured, uh, class time.

Jackie continued to discuss her experiences of cooperative learning in the classroom:

I am generally happy with all the people, like the help that we get from the, um, the other students, and that is kind of good. It might just be just, yeah, individual help with figuring out the music. Jack, a teaching assistant, was leading us on a song. Amy helps others, but she would have helped me if needed anything.

The teaching assistants, Jack and Amy, are helpful to the whole class. Like it helps us keep the rhythm. It helps us answer the question, "What is the nature of this music?" It is just, you know, "How many times do we need to repeat, and how do I know this?" That sort of thing. Because I don't have a familiarity with music, those repeats make me crazy. I have to write them in with a big marker like this, you know. And so, I remember to go back and put arrows and stuff. Anyway, I think it is a nice thing that they are here to help us.

Johnson et al. (1991) stated that cooperative learning includes face-to face promotive interaction where most of the tasks are performed through an interactive process in which each group member provides feedback, challenges one another, and teaches and encourages his or her group mates. Jackie mentioned there was not enough class time to ask questions. She stated that if there were another 20 minutes to practice during class, she could ask questions to her classmates or instructor. However, Jackie did find her own opportunities to ask questions to other classmates who were practicing in the classroom after the instructor went home. She stated that she was able to get her questions answered after class rather than during class. Asking questions

and getting answers from other classmates allows students to gain knowledge outside of the

allotted class time, and it also encourages students to continue learning.

Jackie also relied on the support of Jack and Amy who were teaching assistants of the

music ensemble. Jack led and directed the music ensemble on a particular musical piece. Jack

and Amy's roles helped her answer questions, such as how to play the rhythm and repeats within

the musical piece. The music ensemble instructor (Kerry) delegated her work to the teaching

assistants, such as Jack and Amy. This opportunity allowed Jack to help and answer questions to

Jackie and the other music ensemble members. To reiterate, through cooperative learning,

students rely on each other for help and receive encouragement and support to continue learning.

<u>Sarah</u>

Sarah and I talked about her personal experiences using cooperative learning, especially

within the music ensemble classroom:

> We had a young man who I believe he was in 7th grade when he came into class. He had never played a musical instrument before in his life, and he did not know how to read music at all. And so, the instructor helped him, and the people next to him were helping him. He wrote musical notes inside the steel drum with a marker. They [the class members] gave him musical note instruction, such as where are musical notes, such as "F-A-C-E" and "Every Good Boy Does Fine," on the lines of his sheet music. He would write the names of the notes on his sheet music. They [other class members] would also help him with writing the names of the notes next to those notes on the sheet music.

Sarah explained the benefits of practicing within a music ensemble.

> You meet new people. You, um, maybe get new ways of learning, you know. Like uh, last semester, there was a rhythm that was kind of difficult, and um, some people didn't read music or even the ones that did know was like, "How do we do this?" Um, someone gave a suggestion how they interpreted it and made it easier for the rest of the group to get, and we clapped it out. I think you get a sense of accomplishment when you have all done it right.

Sarah explained how cooperative learning influences collaborative learning.

> We have some new members, but we are very welcoming of the new members. We do whatever we can to help the new people out, you now. We had times where we have said, "Let's have an extra half-hour of practice before class starts. We can work on this section." If we are playing something more difficult, we had a time where we said, "Let's meet at 5:30 pm, and we can get into the practice room because Dan has a key, and we can work on this."

Cooperative learning does not ask teachers to teach the students, but it directs them to the sources of information. In this way, students create their own learning. Cooperative learning enhances the focus of constructivism and enables students to reach their learning goals. To do this, small teams are created, and interdependence is generated, allowing group members to help each other reach their goals (Tombak & Altun, 2016). The use of cooperative learning can lead to students' reduction in anxiety and higher performance. It can be concluded that cooperative learning provides a comfortable, non-stressful atmosphere and offers opportunities for students to support, encourage, and praise each other through discussion, creating, and thinking in a group rather than in a whole class context (Nejad & Keshavarzi, 2015).

Sarah explained about the 7th grader who did not know how to read music but came to join the steel band to practice and perform. In addition to the instructor, the class members helped the 7th grader by teaching him how to read the notes of the sheet music. They provided the necessary music instruction to help him understand what he was playing and how to play it on his instrument. The class members used cooperative learning to help the 7th grader read music.

Sarah also mentioned that the ensemble couldn't grasp a difficult musical rhythm. Someone in the ensemble provided a suggestion, and the ensemble clapped out the rhythm.

Working in a group and using cooperative learning offers benefits of learning from others versus working alone.

Sarah pointed out that cooperative learning allows new members to feel welcomed in the music ensemble. She also stated that the regular members do everything to help out the new members, such as opening up the practice room and allowing for extra practice time before the start of class.

Overall, cooperative learning helped the students in the music ensemble. Students generally experience anxiety and stress when encountering difficult concepts to learn and understand. If advanced students are available to help newer students learn a difficult musical concept, this process helps reduce anxiety and stress. Cooperative learning provided a non-stressful atmosphere and allowed the students within the music ensemble to support, encourage, and help each other through discussion, creating, and thinking. Working together also allows the students to construct knowledge, such as the student's suggestion to solve the group's rhythm problem.

<u>Jack</u>

Jack discussed his experiences of cooperative learning within the music ensemble:

I initially started as a music performance major, but then after my first year, I was like, "You know what?" Even before that, I was thinking I wanted to get into teaching, but when I came here, I realized they also had a music education program (university). I was like, "Maybe that will be in my best interest" because it will teach me different methods, different ways to relate to different people.

I am currently a student teaching assistant in the music ensemble. When it comes to reading music, I will go help a student identify what note it is, and I will tell them if it helps, it may help to write which note it is by writing under the note or above the note. So, when you see it, you will just associate that after a while. After a while of continuous practice, you will just associate that on that line as "A" or "B." That is something I try to do and also, like, just take one measure. I help with the music ensemble members outside

of class. I will take one or two measures over and over until they remember that. And through visual and oral practice, I guess, repetition, it gets you used to seeing that note and realizing, "Okay, this is where my hand has to go now (on the instrument)."

Working cooperatively with peers and valuing cooperation, results in greater psychological health, higher self-esteem, and greater social competencies than competing with peers or working independently (Johnson & Johnson, 1999). When individuals work together to complete assignments, they interact (improving social skills), promote each other's success (gaining self-worth), and form personal and professional relationships (creating healthy social development). Students provide the opportunity to share and solve personal problems, which increases an individual's resilience and ability to cope with adversity and stress (Johnson & Johnson, 1999). Students learn how to communicate effectively, provide leadership, help the group make good decisions, build trust, repair hurt feelings, and understand other points of view (Johnson & Johnson, 1999).

Jack mentioned that he helps and assists music ensemble members because he has a desire to become a teacher. He helps them by identifying what notes are on the sheet music and how to play them on their instruments. There is an interaction between Jack and the students, in which they form personal relationships and solve problems together. A sense of trust also develops between him and the students. In summary, cooperative learning can allow students to help other students. It allows them the opportunity to share and solve problems together. Learning music is quite difficult, especially for those individuals with a limited musical background, but cooperative learning helps increase an individual's resilience and ability to cope with adversity and stress. Cooperative learning provides support to students in learning music.

I also observed Jack leading the music ensemble in one musical piece:

Jack [music assistant] has led the ensemble before, so everyone knew him well. He was very competent on the steelpan, as well as teaching the rest of the music ensemble. He asked everyone to play scales on the steelpan and other instruments. We played C, D, E, F, G, A, B, C, and then finally we went backwards. We started playing arpeggios, such as C, E, G, C, and then returned backwards. I believe this method is a way to acquaint newcomers and returnees with the steelpan instruments. After not playing for a month or so, one can forget. Jason also asked questions to the ensemble, such as "What is a key signature?" He knew that some members did not read music, so he wanted to make sure everyone was understanding what they were playing. Jack had each ensemble section go over their parts. He practiced with each ensemble section, such as cellos, bass, and tenors. He asked Amy to assist with some ensemble members in trying to play certain parts of their sheet music.

I observed Jack assisting other music ensemble members while Kerry was leading the

music ensemble.

Song #1 was the one that Kerry wanted to spend a lot of time on. It was a simple song. Kerry's technique was to take one section of the musical piece at a time. After members of the ensemble became accustomed to that section, then Kerry would take it faster. Jack was standing by and providing assistance to others, such as 2nd tenors or cellos. Jack would assist others by pointing on how to play a certain section on people's instruments.

One group of researchers studied peer learning/cooperative learning and showed that

students engaged in peer learning applied it to practicing their musical instruments to various

degrees. This process involved sharing and discussing topics with peers and spending time

practicing with peers (Nielsen et al., 2018). There were certain times that Kerry allowed Jack to

lead the ensemble because he also was a music education major. Jack knew many ensemble

members lacked the musical background to play the steelpan instrument effectively. He went

over scales and asked the students questions, such as, "What is a key signature?" He also assisted

students by showing how to play their instruments during certain musical sections when Kerry

was leading the ensemble.  Jack applied peer learning, in which he shared and discussed certain

topics (e.g., musical scales and key signatures) with the music ensemble and practiced with them

(e.g., showing students how to play their instruments). He was providing assistance to the

students, since learning the music and playing the instruments at the same time was difficult for

some.

<u>Amy</u>

Amy discussed her cooperative learning experiences within the music ensemble:

> I mean I started, uh, helping out with the music ensemble mainly, um, to help people as a drummer, especially to play drums and maintain the rhythm. It definitely helps also, um, from a teaching aspect to be able to look, to watch Kerry (music ensemble instructor) as she teaches, um, to realize like how she works certain things out. For example, there are times when someone is not getting a rhythm or not playing correct notes, or how she handles things she doesn't like. I think, um, in terms of helping, when I come to the music ensemble, I think I prefer to just play just along and see if people catch on. Sometimes it is easier for them to watch what you do instead of trying to read the music and listen. Read, listen, and play at the same time is hard for some people. So, it is easier for them to look at what you are doing and copy. So, that is why sometimes you see me, um, hop on a pan (steelpan) and play along.

The use of cooperative learning can lead to student anxiety reduction and higher

performance. It can be concluded that cooperative learning provides a comfortable, non-stressful

atmosphere and give opportunities for students to support, encourage, and praise each other

through discussion, creating, and thinking in a group rather in a whole class context (Nejad &

Keshavarzi, 2015). Amy expressed her desire to help the music ensemble members. Instead of

saying what the notes are on the sheet music, and where they are located on the students'

instruments, she stated she just wanted to play along with them and allowing them to observe her

playing. Amy's role was to give support, encourage, and help students with their difficulties.

Although Amy preferred to show people how to play their instruments rather than explicitly

instruct to them, she still provided the necessary help to others when the instructor was not

available. This action allows students to persevere and continue striving to learn difficult

concepts.

<p align="center">Molly</p>

Molly explained her cooperative learning experiences within the music ensemble:

> When I started with the steelpan, there was a young man named Oscar, and I asked him I wanted to learn a few skills. He said, "No, no, no, no, no. We are going to learn music." I took lessons continuously. There were lots of times I needed help. Most of the help came from the graduate students themselves. Not always in a classroom setting, but as Sandy had mentioned, we would agree to meet at a certain time, and they would come and help with whatever you needed.
>
> Sandy asked me to teach her steel pan and help her with music theory. And so, one of the things that I know about, especially in adult learners, which is true in children, too. Children have different ways that they learn. Some are visual learners, some are tactile learners, and some are oral listeners. But when you get to be an adult, those methods are so solidified. When I am working with Sandy, what I do pretty much is I say we are going to learn this measure of music, and then I show her five or six different ways of learning that one measure. So, I have her one day sitting in front of the piano. Another day she is tapping out [rhythm] on a table, and another day she is writing down notes.
>
> When I had questions about the bass instrument, I called Kerry and I said, "Kerry, I want to come back here [bass section], and I want to watch you." Because in playing bass, not only are the notes played and getting to the right pan at the right time, it's also your feet. You have to move forward and backwards and side to side.

Molly explained how cooperative learning influences collaborative learning:

> Cooperative learning is where another individual is more knowledgeable versus one that is less knowledgeable. Collaborative learning is more one-on-one equal-peer-type thing. The key to all this is if you gain confidence, you feel that your contribution has value. I think the value is very important in getting the music put together. Overall, the key to having a good performance is that you have to feel valued.

Kinsella et al. (2017) researched that students benefited from cooperative learning in

group work. Students perceived how group work made students engage more, was easier, and

improved grades. Students commented: "learning with peers can be interesting and fun to be

involved in," "group projects teach students communication and mutual respect," and "we learn responsibility and how to hand in projects on time." Molly stated that she took music lessons from Oscar and received help from graduate students. When she had questions about the bass instrument, she asked Kerry for help in moving back and forth while playing. In general, when Molly received help from others, she learned more and gained more confidence in herself and her abilities. Learning with others can be more fun and easier versus learning alone. Molly learned how to communicate with others, gain mutual respect, and be responsible in studying with others. She also taught Sandy music theory. Finally, she stated that cooperative learning allows a learner to gain confidence, and that whatever contribution one makes to the music ensemble has value. In summary, learning concepts can be quite difficult, but if there are others around to help, one can gain confidence in mastering those concepts. Once an individual gains confidence, he or she can contribute to any kind of learning (e.g., collaborative learning).

<u>Sandy</u>

Sandy discussed her cooperative learning experiences within the music ensemble.

I took music lessons with several of the undergraduates or graduate students that was one-on-one, and I think of them as tutors. Some lessons came from a graduate student named Peter. I also took lessons from Jack. They were not a formal series of lessons, but we would agree to come and meet at a certain time to work on a specific piece of music or part of a piece of music or rhythm or something of that nature.

Sandy explained how her cooperative learning experiences contributed to her collaborative learning.

All of those experiences were cumulative, and every one of them was helpful in making me better capable of doing the contributions of the ensemble my instrument required me to do.

Cooperative learning helped me to coordinate what I was doing with the other members of the ensemble. It was a new experience for me. It helped me to learn to listen to what other people were doing and try to be better at blending in my contribution to the music.

Group activity enhances group interaction, interpersonal cooperation, and management skills. By communicating the individual member's needs and negotiating with other group members, students learn to work with one another (Yang & Qian, 2018). Sandy stated that she received music lessons with undergraduate or graduate students on a one-on-one basis. They would meet at a certain time to work on her music rhythm and other issues. Sandy developed relationships with her tutors, which enhanced her group interaction, interpersonal cooperation, and her management skills. She learned to negotiate and work with others. Sandy added that cooperative learning helped her to listen to what other people were doing and try to be better at contributing to the music ensemble. Learning to work with others can be difficult at times, but by listening to what others have to say, it makes it easier to contribute to the music ensemble.

John

John discussed his cooperative learning experiences within the jazz trio:

It [cooperative learning] helps me to understand. I can practice by myself, but I just like to listen, just to hear what the drummer is doing. And then if they [other musicians] do not want that, then they have to tell me exactly how they want this. If it is a different version like, let's just say like reggae tune, and it turns into a more of a blues feel, well, then I got to change the way I play the drums.

People will start saying, "That is not a shuffle." They will tell you, "It's got to drive, ta, ta, ta, ta, ta, ta, ta, ta, ta, ta, etc." It depends on how you ascend it. If you don't do it right, then you are going to hear from the band. You know, this is like, "No, we want a little more, less of that, so make it swing," you know.

Cooperative learning allows for group members to improve their critical thinking skills. One area of critical reflection is *openness about mistakes*. It enables people to learn from their mistakes and see them as opportunities to realize their accepted views about reality may be misguided. Being open about mistakes means that students share and compare with others what went wrong. It allows them to see and evaluate what is effective or ineffective in practice. Students receive feedback from others. Being defensive or trying to cover up mistakes could reduce the chances of discussing their actions or learning from others. The method of *comparing one's own perspective to others' perspectives* also facilitates making informed decisions (de Schepper & Sotiriadou, 2017). Group members allowing themselves to be open to the opinions of others will help expand their understanding and learning of new things.

As John explained, he listened to other people's comments and perspectives. He discussed understanding how others wanted him to play the drums, and how he needed to adjust his drum playing to fit the wishes of other band members. As the literature stated, improving one's critical thinking skills involves being open about mistakes, resulting in students sharing and comparing with others what went wrong. This allows them to see and evaluate what is effective or ineffective in practice. Students receive feedback from others in this way (de Schepper & Sotiriadou, 2017). John received feedback from others, which allowed him to see what was ineffective or effective in band practice. It also allowed him to be open to other people's opinions and helped him expand his understanding and learning of new things.

<u>Dan</u>

Dan discussed his cooperative learning experiences within the music ensemble.

We usually start class around 6:00 pm. The class is supposed to actually start from 6:30 to 7:30 pm, but Kerry gets there at 6:00 pm. Some of the students say, "Hey, we want to still get in at 6:00 pm." I was like, "I could bring a key, open the door, and let us in at 6:00 pm." While we were in there, a couple of people asked, "How do you stick this type of thing?" We talked about it the week before. It had a constant rhythm that was awkward in playing. Even Kerry tried to figure it out, and sometimes she hears things, such as, "How do you get from here to there?" She just said, "Do what makes you feel comfortable." Overall, I don't think everyone does it the same exact way. You either feel better about the way you were doing it, or you incorporate some of the sticking techniques that another student did.

Students seek outcomes that are beneficial to everyone. They discuss material with each other, help one another understand, and encourage each other to work hard. Individual performance is checked regularly to ensure all students are contributing to the group and learning process (Johnson & Johnson, 1999). Dan discussed that certain students had difficulties in applying stick techniques when playing musical pieces on the steelpan. He said that people would ask questions to each other, learn to experiment stick techniques on their own, or learn some sticking techniques from others. Overall, learning within a group allows learners to seek help from others while also exposing individuals to new ideas. Cooperative learning also provides support and encourages everyone to work hard.

<u>Tony</u>

Tony shared his cooperative learning experiences within the music ensemble:

It happened the other night because Kerry did not come to class that night. She was on a business trip. So, Amy, one of the teaching assistants, was conducting the music ensemble rehearsal. It was interesting because they were working on my song, which is the one I wrote, and so the players were asking me, "Can you show me how this part plays?" You know, there were a few things that Amy didn't really know certain parts in the song that well. So, I took over and, you know, I would play the passage for them, and then it was actually better that way. I tried to just show them how to read it.

Tony also discussed how cooperative learning related to his collaborative learning with others in the music ensemble:

> I listen more. I had to listen to what other people are doing and even listen to what I am doing. I would ask myself, "Is this relatable to somebody else? Can I help them either by playing it correctly and have them emulate me?" If I hear something, maybe I am playing it wrong. It also happened when I have played a rhythm wrong or something, and I hear somebody else doing it. I am like, "Wait a minute. That is right." I am not always right. So, it forces me to listen and to really be accountable for both being a better player or as a student learner. Just listening and emulating someone else makes one better.

Cooperative learning is a highly socialized, interactive, and modern kind of communication that involves individual students actively participating in small groups or pairs to exchange their understanding, knowledge, and expertise during their assigned classroom activities. This kind of learning takes place in a socialized and collaborative environment, and every student plays an important role in the group to accomplish the required task (Raja et al., 2017). Tony, an arranger of various musical pieces for the music ensemble, received questions from other students of the ensemble on how to play certain parts of his arrangement. He would show them on his instrument because sometimes writing and composing music and actually playing can sound quite different. Cooperative learning also allowed Tony to listen to others' comments, as someone may point out an error in his musical arrangements. He stated, "I am not always right." Through cooperative learning, students of the music ensemble were able to exchange their knowledge, expertise, and understanding of Tony's musical arrangement. It helped Tony understand where the difficulties existed in his musical arrangement and also allowed him to become a better musical arranger by listening to others.

## Kerry

Kerry shared her cooperative learning experiences within the music ensemble:

What I have seen students doing is while I am helping other students, I may see multiple students trying to figure out the stick patterns, such as where are the sticks supposed to hit the steelpan when playing music. I have also seen people having difficulty following the sheet music, so someone else may give advice on how to read the music or give tips. Other students gave advice, for example, say color coding sheet music. Some people suggested that they will put yellow markings on repeat signs, so visually they will be able to follow much easier.

Kerry explained how cooperative learning also influences collaborative learning in the

music ensemble:

I think that it [cooperative learning] brings the ensemble together. So, when people are willing to help each other and other people are willing to learn from each other, it just builds a stronger community together. It makes the ensemble more fun. What I hear from a lot of members is that it [music ensemble] is fun because it is like a family.

So, it is not just about learning how to play the steelpan, but they get to come together. They get to talk, and they get to play music together and playing with people who they feel comfortable with, people who they have fun, yeah, just being around. So, it is become something beyond just the music ensemble. It is a community where everybody is welcomed no matter what their musical background may be, and it is just a comfortable space where anybody can come together to make music.

I think it [cooperative learning] makes interactions much easier when people are comfortable around each other to do anything together. So, it can be intimidating for some members, especially if they don't have a musical background. Because they feel comfortable around one another, they don't have intimidation, fear, or shame. So, it makes it easier for them to learn.

Students organizing an event together commented that cooperating, learning, and working together was a positive experience that offered the chance to "connect" with group members and classmates, in general. One student said, "I can improve myself such as trusting teammates; trust is crucial to teamwork, and it starts with people knowing each other" (Daud et al., 2019). Kerry mentioned that students in her ensemble class helped each other, such as understanding where to hit the steelpan when practicing the music or reading sheet music. She also stated that cooperative learning allows students to help each other since many lacked a musical background. The intimidation or fear does not exist because the students feel

comfortable with each other. Cooperating, learning, and working together provided a warm and comfortable environment for members of the music ensemble. People learn to trust and accept each other despite their limited musical abilities. Kerry mentioned that the music ensemble was like a family, and they came together to make music and have fun.

I observed the following cooperative learning experiences that Kerry participated in:

The last musical piece was arranged by Jack, in which he led the ensemble and provided instruction on difficult rhythms. I would also observe Kerry helping out Mercy with musical instruction during Jack's ensemble practice. At the end of class, Kerry also mentioned to the class if anyone needed help, she was available.

The use of cooperative learning can lead to student anxiety reduction and higher performance. It can be concluded that cooperative learning provides a comfortable, non-stressful atmosphere and gives opportunities for students to support, encourage, and praise each other through discussion, creating, and thinking in a group rather in a whole class context (Nejad & Keshavarzi, 2015). Kerry also knows that many of the students in the music ensemble are non-music majors. Some music members lack the musical background to play the steelpans effectively, but she wants everyone to try learning music and have a good time. She assisted Mary when Jack was leading the ensemble and also made herself available to help students after class. Her goal was to provide a comfortable, non-stressful atmosphere for everyone.

<center>Reflection Improves Collaborative Learning</center>

The fourth theme discovered in this study is reflection improves collaborative learning. As previously discussed in the literature review, reflection refers to some phenomenon subjected to thorough consideration during which one's thought dwells for a long period of time on an object to obtain a better and deeper understanding of it. The object of reflection can be one's own

activity or any other kind of object. It is possible to reflect upon something quite different from oneself (e.g., the origin of the earth, the nature of electricity, etc.). Reflection on one's own professional activity (e.g., teaching) can be aimed at the planning of a school lesson or the evaluation of an instruction (Bengtsson, 1995).

The following section presents each interview participant talking about their personal experiences of using reflection in their personal, professional, or academic lives. The participants in this study are: (1) Betty, (2) Dan, (3) Sarah, (4) Charlie, (5) Jack, (6) Amy, (7) Tony, (8) Sandy, (9) Molly, (10) John, and (11) Kerry. I also include observation notes of ensemble music members engaging in activities of reflection.

<div align="center">Betty</div>

Betty discussed her personal experiences using reflection in the music ensemble:

There were some songs that the stick playing was difficult. Sometimes I would be so focused on trying to get the note out, but I wasn't thinking ahead to where the next note was coming from. I thought about that after we played and thought about it at night, or the next day. Mostly when it is quiet if you have a chance to sit down, or even if you are talking to a colleague about something completely different, such as plans for the weekend or something, it is always in your head.

Reflecting is constant with me. Even at 3:00 am, you can call me, I will be awake. Sometimes, I never even get out of bed, I just look up things on my iPad or something. This is so weird. For example, this was around Christmas time, and we were singing a lot of religious songs at the place where my mother lives. We were singing *A Mighty Fortress is our God* and all of a sudden, I wake up the next day at three o'clock in the morning going, "Well, what is the difference between a fort and a fortress?" There is a trigger event of some kind. Sometimes it is song lyrics, sometimes it is something related to science.

When I was working as a nurse, I usually woke up at three o'clock in the morning going, "I should have done this and that." I would ask myself, "Did I do such and such right? Did I forget to do something? Or was there a value that I missed, or some conversation that I should know about that I wasn't included in and therefore my decision-making was not as good as it could have been?" There was always something that I am thinking about. Some questions that just pops into my head.

To make "meaning" means to make sense of an experience and to interpret it. People use this interpretation to guide their decision-making and actions. After they make meaning of what they experience, this concept becomes "learning." Reflection enables individuals to correct distortions in their beliefs and errors in problem-solving (Mezirow, 1990). Betty stated that there were songs which required difficult stick playing. She would think about her problems while she had at a quiet moment, such as when sitting down or in bed at 3 am. Betty was making sense of her experiences during her reflection periods. She looked back at her stick playing experiences which allowed her to see what, how, and why her stick playing was difficult. It allowed her to think and find better ways to approach her stick playing. Sometimes she would ask herself questions at 3 am about whether she did certain things (e.g., stick playing) correctly. After she sorts out and understands her experiences, she can use that knowledge to practice the next time she goes to class.

<div align="center">Dan</div>

Dan provided his reflection experiences related to the music ensemble:

I can come in [into the steel band practice room] some days for practice, but then it is hard to get in multiple days of the week, or I can use [the app] on this little iPad. My reflection was, "I wish I had more time to practice. How can I make a method for me to practice more that won't cost me an arm and a leg?" So, I came to the following conclusion, "I will make a digital steel pan. I have enough knowledge about electronics."

These reflections happen all the time. Sometimes I wake up at night. I think about it all the time. Sometimes I will wake up in the middle of the night and think, "Wow, that makes sense."

About last year, Kerry was saying how someone dropped a stick onto a steel pan. She was like, "Please be careful with the pans." Another person opened up their music folder and placed it inside the steel pan. She said, "Please don't do that. Those [steelpans] are very difficult to tune and delicate." They get out of tune very easily. I was like, "If everyone had their own thing [steelpan], these would never go out of tune, such as a digital steel pan. A digital steel pan is always tuned, and it never has to be retuned again.

It was one night I just woke up and I said, "I can do that." I remember I woke up, and I said, "I can do that." Maybe I woke up a little bit early. I went to the Amazon website, and I started ordering the electronic parts.

Reflection means some phenomenon is subjected to thorough consideration and that one's thought dwells for a longer period of time on an object to obtain a better and deeper understanding of it. The object of reflection can be: (a) one's own activity or (b) any kind of object. It is possible to reflect upon something quite different than oneself (e.g., the origin of the earth, the nature of electricity, etc.). The reflection of one's own professional activity (e.g., teacher) can be aimed at the planning of a school lesson or the evaluation of a carried-out instruction (Bengtsson, 1995). Dan stated that he had problems of coming into the steel band practice room and using the steelpan to practice with. His problem was that he wished he had more time to practice. He needed a steelpan to practice with, but he did not want to invest a lot of money in purchasing one. He thought it over and decided to create a digital steelpan. Also, he mentioned that the steel pans get out of tune very easily if you hit them hard; digital steelpans are electronically constructed, so they never go out of tune. Dan spent time considering and understanding his problems regarding the steelpan. He was trying to find a solution. He stated he that he woke up in the middle of the night, decided to build a digital steelpan, and ordered the electronic parts from the Amazon website.

<center>Sarah</center>

Sarah described her personal experience of using reflection related to the music ensemble:

There will be times when I have difficulty in using sticks to hit the steel pan. There was a rhythm before that had triplets, and I kept thinking, "What would be the easiest way to do this?" I just thought, "Wait a minute. I will just leave." I was driving home from practice

one time, and I thought, "Why don't I just leave this hand by the F note, and then I have the B and the E notes here next to each other, and there is a G note over here." I went through several scenarios or possibilities of playing the sticks in my head as I was driving home. I decided to try out my ideas the following week in class because it was really frustrating that I could not just turn the car around and go back and try it. So, I had to wait till another week, and then I went in a half an hour early into the practice room and tried it. At first, it was clumsy at first trying out the new rhythm I thought about the previous week, but it was like, well, this is so much easier.

Learners replay the events that took place and to notice exactly what occurred, as well as the reactions that developed. As with reflection after the event, learners are influenced by their personal experiences and intent. What is taking place within learners is an integral part of the experience. The interaction between the learners and their personal social environments affects them. It is important for them to be aware of the feelings that are being generated, the thoughts that arise, and the actions that may be prompted (Boud & Walker, 1991). Sarah described the difficulty she was having with playing her sticks in a difficult rhythm that used triplets. She used the opportunity to think and reflect on (i.e., replaying the events that took place and to notice exactly what occurred) over her problem while driving home from practice. After imagining several scenarios and possibilities to correct her problem (i.e., thoughts that arise), she decided to apply her ideas (i.e., actions that may be prompted) the following week in the practice room. The result was that her stick playing became easier.

<p align="center">Charlie</p>

I talked with Charlie about his experiences of using reflection in the music ensemble classroom:

Well, I am trying to reflect on class because for me, it is like, "Oh, I think I should get the musical notes out, and I try and think about them again, you know, before I get to class,"

you know? I don't have a way to practice a steelpan at home. If I had a steelpan at home, I would probably practice.

But, you know, reflection, I think of this. If you take in a lot of something, and just sit on it, whatever it is, you know, the thought process behind it, maybe unconscious, eventually amounts to something. So, you know, you will get to your solution if you, you know, just let it simmer. That is my take on it.

Reflection is where if we don't figure something out right away, you know, you will have a week to think about it. It takes a while to digest. It will come to me the next day or later that night, you know. And so that might be something, you know, I think sleeping on it helps. It is just a more natural like a refreshed charge. I think there is something about sleeping that puts your brain in a way that it organizes and settles it out and shakes it out.

Individuals find that critical reflection provides a way of "standing back" and seeing issues from a different perspective. It is said that the theory of critical reflection, as well as the process, makes it possible for people to articulate and analyze issues, particularly identifying what they have assumed about how things are and how they could be. They also articulate the value of knowledge generated from their own experience (Fook & Gardner, 2007).

Charlie mentioned that he reflected on his music practice before arriving to class. He also mentioned that reflection is an unconscious thought process which requires time to "simmer" before a solution eventually arises from the thought process. He also added that it takes a week to think over and find a solution to a problem. He may also find a solution the following day after a good night's sleep. The literature pointed out that individuals found that critical reflection provided an opportunity to "stand back" and see various issues from different perspectives. It gives individuals the opportunity to analyze issues and formulate and develop new knowledge. In summary, Charlie perhaps felt that reflection had the power to allow others to see new things by "standing back" and taking time to think, reflect, simmer, and recharge in their thought

processes. Insight and new knowledge allow others to discover different ways of solving problems.

Jack talked about his reflection experiences within the music ensemble:

> I think reflection is like thinking about something that is already there. It is kind of like thinking about what happened, what you did already, but then while you are reflecting, you try to see where you can go with it after what you have already done. I think it goes in hand with innovation and collaboration.

> Reflection-on-action refers to looking back to what was going through the adult learners' minds during the actual practice encounter (reflection-in-action). The next time we engage in actual practice, our reflection (reflection-in-action) should draw on our previous reflection-on-action. This process sets up a cycle in which we integrate the two sets of reflection and thus provide a basis for integrating theory and practice. Overall, it ensures that practice is informed by theory and that theory is informed (and tested) by practice (Thompson & Thompson, 2008).

The literature states that reflection-on-action refers to looking back at what was going through the adult learners' minds during the actual practice (reflection-in-action; Thompson & Thompson, 2008). Jack said that he looked back on what he did during performance or practice. The next time he performed or practiced, he thought back about what he did (reflection-on-action) and applied the necessary changes to improve his current performance and practice.

I personally observed Jack leading the ensemble in learning a difficult rhythm.

> Jack was leading the ensemble to learn a difficult rhythm. He would hit his cowbell with a stick while going over the difficult rhythm. Mary played the drums to a steady beat. Jack had the music ensemble clap on a certain beat while he counted out loud. He went over that particular rhythm many times until everyone became familiar with it. He also invented a phrase: "Tick a tick, tack."

The same literature, Thompson and Thompson (2008), applies in this example as well. Jack was having the musical ensemble members learn a difficult rhythm by clapping as he hit the cowbell and counted out loud. He repeated this pattern several times until everyone became familiar with it. Everyone in the ensemble looked back on what they did during the practice. The next time they repeated the pattern, they thought back about what they did (reflection-on-action) and applied the necessary changes to improve their current practice.

<u>Amy</u>

Amy discussed her personal reflection experiences within the music ensemble:

I think a lot of reflection. I think sometimes when you try something, and it doesn't work, or it doesn't sound like you thought it would, then you think about how you could change it to make it better, you know, to make it what you want it to be. I also think reflection is like a time to think about why you did something, and where was, I guess, the feelings that drove whatever you composed or arranged [musical piece]. Then you can develop that [musical piece] even into something that, you know, something that you wanted to happen. I think reflection just gives you more time for the music to grow sometimes.
     I do a lot of that [reflection] because, for example, my upcoming recital has to succeed. My recital is only supposed to be 50 minutes to an hour long. Everything has to go smoothly. Every time we are going to start rehearsing, I have to think about how I can make things run smoothly for the next practice session. I think about these things after we complete a practice session. We have to play first and see what happens. Then I can reflect on what happened. Reflection occurs at any time for me. Whether I am in a noisy or quiet place, it doesn't make a difference. It just happens.

Hale et al. (2018) discovered that educators conduct research on a daily basis. They observe, reflect, and make adjustments to their teaching. Action research gives teachers concrete, localized data that they can analyze and reflect upon. For reflective practice to lead to meaningful change, there needs to be some formal data collection performed.

Amy said, "I think sometimes when you try something, and it doesn't work, or it doesn't sound like you thought it would, then you think about how you could change it to make it

(better)." Like an educator observing, reflecting, and making adjustments to their teaching, Amy

must think back and understand why her performance or practice (e.g., upcoming recital practice

sessions) did not work to her expectations. After thinking it over, she took that knowledge and

applied it to improve and correct her next performance or practice. Amy also stated that

reflection occurred after her practice was completed. It helped her to plan for the next practice

session. Reflection occurs at any time regardless of whether she is in a quiet or noisy place.

<u>Tony</u>

Tony discussed his general reflective experiences:

The last project I did, I used to wait in line for my kids at school. I would sit in the car every day for about 45 minutes to be first in line, and it was actually my time to either read, or I had my songwriting notebook. There is also a notebook full of business ideas, or you know promotion ideas or concepts for like the album. So, there is a lot of stuff going on. I have a binder which has a section for songwriting, another section for business ideas, or even like a list of things I need to do like a timetable, so, yeah, but that's a huge part of it. I have heard stories like guys like Thomas Edison, who used to sit in a room with like sensory deprivation, like a dark room and just see what popped into their head, you know. And I, unfortunately, don't have much time to do that, but I do believe you can really, if you quiet your brain, you can actually tap into your subconscious, and that has happened. You know, Ernest Hemingway used to say—he would schedule a time to just sit with a typewriter.

I am about to get back into the songwriting thing now. I have gotten songs popping into my head the last two months, you know, while moving or shoveling snow. I have songs in mind that are going to be kind of in the pipeline.

The quiet sounds and the stillness are the best way for me to find solutions to problems that can bubble up, and you can relax, you know, by sitting in a quiet room for a while. I have written songs more in the backyard or while shoveling snow. These ideas, you know, wherever they are, just happened, and I will go write them down a lot of times. But with music, reflection is a really important skills to have, to let those ideas come out or to learn. I have a melody stick in my head like that.

Reflection after experience can affect the personal worldviews of learners and can help

ensure that new perspectives on experience will be present in the future. The new learning that

flows from reflection not only changes future approaches to events, but it can also affect the

behaviors of learners and provide them insight into how they learn. Reflection after experience

plays an important role in one's awareness of the personal, political, and socio-cultural

dimension of the learning process (Boud & Walker, 1991).

Tony stated that he kept a binder of his ideas (e.g., songwriting, business, promotion,

etc.) for his songwriting business. He would read books and write down ideas in his notebook

whenever they came to mind. He also mentioned that reflection is tapping into one's

subconscious. It requires quieting down the brain, and he mentioned examples of Thomas Edison

and Ernest Hemingway being alone in a room, reflecting, and allowing ideas to emerge from

their subconscious. Tony also mentioned that ideas or solutions to problems emerge if he is

sitting in a quiet room, walking in the backyard, or shoveling snow. In applying the literature to

Tony's example, reflection after the experience can affect the personal worldviews of learners

and can help ensure that new perspectives on experience will be present in the future. Tony took

the new ideas that he thought of in the car or after reading books and wrote them in his notebook.

Whenever he was doing something not related to his professional work, such as moving or

clearing snow, these ideas perhaps emerged from his subconscious to his conscious mind, so that

he could apply them to his songwriting. Reflection allowed Tony to gain insight from his

learning and previous experiences.

<u>Sandy</u>

Sandy described her experiences of reflection within the music ensemble:

I think about it from the point of view, well, I have a set of double seconds [steelpan
instruments] at home because I was playing double seconds in a different steel band. I
will be working on a piece of music on bass, and then it doesn't sound the same, but I

will take it home, and I will translate it and play it on the double seconds, so I can practice the timing and the pacing and just listening to the notes. But also, when I am practicing on the double seconds because the notes are smaller, you know, some of them are only this big, you have to be very precise about the orientation of the stick and where you hit it. I am always thinking, "How can I do a better job making that good tone for that particular note?" So that is the kind of a planning thing and frequently I will wake up, you know, in the middle of the night or something like that, and I am doing one "E" and two "Es" in my head because that is a pattern I have been trying to learn. So, my brain is working on that information in the background, even if I am otherwise occupied like sleeping.

For me, it [reflection] was also more hands-on experimental. Try this. See what is sounds like. Does it make a good contribution, instead of the overall music? Maybe modify it. I guess that the best thing is that it was hands on experimental for me.

The structure of inquiry involves two kinds of movement mediated by reflection. First, reflection leads to experiment. Second, reflection on the unexpected results of experiment leads to discovery or invention. With the interweaving of theory-building and invention, experiments function both to confirm and disconfirm hypotheses, to affirm or negate moves, and to explore new phenomena. The discovery of new hypotheses and hypothesis-testing experiments lead to invention (Schon, 1983).

Sandy discussed how she practiced on the bass instrument during music class and discovered the sounds were different, so she would take her bass sheet music and play it on the double second steel pan instruments she has at home. She stated that she was always thinking, "How can I do a better job making that good tone for that particular note?" In applying the literature to Sandy's example, Sandy reflected on the problem and then experimented by practicing on her double seconds at home. As she continued to practice on her double seconds, this period of experimentation eventually led to discovery. Sandy continues to experiment by playing on her double seconds, and she has learned to understand her music better.

Molly

Molly described her reflective experiences within the music ensemble:

I am a hands-on individual. If Sandy and I are in the same room, and we have these instruments, we would try a three-four pattern. We would also try a two-four pattern. We would try a synchronized pattern, and we would just do a pattern on the spot. The next time we came to class, we did have the opportunity to say, "I liked the way you did it better." And there were times where we said, "Oh, I really like what you are doing. Can you show me how to do that or does this fit with your thing?"

One of the things I have done is that if I am having any trouble sleeping, I just lay in bed and go over the music in my head.

Learning arises from the creative tension between four learning modes. This process is portrayed as an ideal cycle where the learner touches all the four modes: (1) experiencing, (2) reflecting, (3) thinking, and (4) acting or action. Immediate or concrete experiences form the basis for observations and reflections. These reflections are assimilated and converted into abstract concepts from which new thoughts for action can be drawn (Kolb & Kolb, 2013). Molly stated that she was a hands-on individual; she tried various stick patterns while practicing with Sandy. Her experiences in music practice provided the basis for her own observations and reflections. She was able to think over new ideas (abstract concepts) based on her observations and reflections, which allowed her to take action (e.g., trying new ideas to correct a current stick pattern). She was also able to reflect on her music practice and sticking patterns while lying in her bed at night.

John

John provided his insight on his reflections within the music ensemble:

I thought last year was pretty good considering the variety of tunes we have played in the music ensemble. I thought that they were a very good selection. It was a good variety of

Calypso. When I reflect back about it, I really thought that maybe I should take some seriousness about studying more steelpan.

      Kerry is helpful. Sometimes, I don't understand a particular musical piece on how it is supposed to be performed. I ask her, "Where can I find an original recording of what you are trying to teach us?" And she will email it to me. I get into it. It may be totally different as far as the arrangement that is presented to us. But it has the feel and has the drive. So, I reflect on that, it is like, "Hey, I like it now." Reflection just happens naturally. It happens at any point. Sometimes I have to listen to a recording of the musical piece. Sometimes I go, stop, or go back about a section before, and I am like, "I hear the part. How come I didn't hear it the first time?" It was like my mind didn't really absorb it the first time.

In any situation, there is reflexive activity in which the learner processes what is perceived, and this step becomes the basis of new knowledge and further action. Reflection on the experience needs to be linked to the events which gave rise to that experience. Learners replay the events that took place and notice exactly what occurred, as well as the reactions that developed. As with reflection after the event, learners are influenced by their personal experience and intent. What is taking place within learners is an integral part of the experience. The interaction between the learners and their personal social environments will affect them. It is important for them to be aware of the feelings that are being generated, the thoughts that arise, and the actions that may be prompted (Boud & Walker, 1991). John stated that he reflected on studying the steelpan seriously after experiencing and performing a good, variety of songs with the ensemble. Also, he mentioned that he played a recording of a particular musical piece and kept playing the music over and over to hear a particular part within the musical piece. As stated in the literature, John replayed the events that took place and noticed exactly what occurred. Reflection after the event caused John to encounter a particular feeling and thought that prompted actions on his part. For example, one action in John's first example would be for John to take more lessons on the steelpan if that is his intent. Another action in John's second example is for John to play the instrument more effectively after listening to the musical recording.

<u>Kerry</u>

Kerry discussed her personal experiences of reflection:

I reflect in the car a lot because I would have to travel from my home to a different city to teach music, which usually takes about an hour. So, a lot of times I would think on the way to work or on the way back thinking about how I can make things work, so students will learn to play the music but also just finding something that works for each ensemble because they are beginning groups. I would think about different ideas in terms of repertoire to how I teach, so they will be engaged because I was arranging my own pieces. I would think about the different sections in each ensemble and think about their strengths and weaknesses and so, I would adjust the difficulty level for each section.

Learners possess a personal foundation of experience that profoundly influences the way they perceive the world. This foundation particularly influences the intellectual and emotional content of their experience and the meanings that are attributed to it (Boud & Walker, 1991). It is the learners' engagement with their personal social environments and their construction of what happens to them that constitutes a particular learning experience. Each learner forms a part in their milieu, enriching it with his or her personal contribution and creating an interaction that becomes part of the individual as well as the shared learning experience. Experience may be viewed as a continuing, complex series of interactions between learners and the learning milieu. A reflective process also exists that can move learners to take appropriate action (Boud & Walker, 1991). Kerry stated that she reflected a lot while driving from her home to her workplace and back. She would think about how to teach to her students and the various teaching strategies she could use depending on the strengths and weaknesses of each ensemble. Kerry's engagement with each student ensemble created a particular learning experience for her. These experiences allowed her to reflect and think about, so that she could take the next appropriate action, such as teaching at a level that matches the level of a particular student ensemble.

I also observed Kerry performing activities related to reflection within the music

ensemble:

> We practiced our first song, Song #1. Kerry wanted us to practice the entire song in its entirety. We would go over certain parts if necessary. Kerry's method was to review old sections as an ensemble and go over any difficulties or other issues. She moved on to a new piece of a composition very slowly. She took each instrumental section separately. She would sometimes combine certain instrumental sections together, and she finally combined the entire ensemble. Kerry stressed that individual members needed to practice outside of class on their own, for example, coming into class and practicing privately or practicing on an I-pad.

Reflection-in-action is a process of inner logic according to which reflection on the

unexpected consequences of one action influences the design of the next action. In the

performance of a task, the performer spontaneously initiates a series of actions that produce an

unexpected outcome. The performer recognizes the unexpected result as an error to be corrected.

He or she asks the question, "What is this? What understandings of mine have led me to produce

this?" The performer restructures his or her understanding of the situation. He or she invents a

new strategy of action. The performer tries out the new action he or she has invented, such as

running an on-the-spot experiment, which in turn results in either a solution, a satisfactory

outcome, or else a new surprise that calls for a new round of experimentation and reflection

(Schon, 2001).

Kerry led the music ensemble by going over certain portions of the musical piece. She

went over the old sections as an ensemble. She moved onto the new piece very slowly and took

each instrumental section separately. In applying the literature, each member of the music

ensemble practices and produces unexpected outcomes (e.g., mistakes, errors, wrong notes, etc.).

The performer notices the unexpected result as an error. He or she restructures his or her

understanding of the situation. The ensemble member invents a new kind of strategy while

practicing. The ensemble member tries out a new action he or she has invented, which in turn results in either the right note being performed or an error. The process continues as the ensemble member practices, reflects, and experiments.

In another example of reflection that I observed, Kerry asked the rest of the music class ensemble for their feedback on how everyone felt about their participation in the last performance. Mercy and Molly shared their interchange about the class comments to the class:

> **Mercy:** First, I noticed that the steelpans we play on look different in the classroom, in the recital hall, and on the main stage. Second, I shared this with Kerry personally, but I always appreciate the dress rehearsals when we go through each song. I felt cold [not sure about the music], and I felt reluctant in playing all our pieces in front of audience members who just arrived and sat down. That [dress rehearsal] typically helps me when we do run the three pieces. It is nice warmup and that familiarizes me even though I play with cardboard steel pans at home.

> **Molly:** Well, you are right, the lighting is different.

> **Mercy:** Yes, it does. The lighting looks different. But I think it was lovely. I loved being there. The setting was great. And I thought it [the performance] was really well attended. People seemed to really enjoy it.

Critical consciousness refers to the way in which learners develop the ability to analyze, pose questions, and act in the social, economic, political, and cultural contexts that influence and shape their lives. Learning helps adults develop a deeper understanding of the ways in which these social structures shape and influence how they think about themselves and the world. This method consists of action and reflection in transactional or dialectical relationships (Dirkx, 1998). Kerry asked the rest of the music ensemble for their comments and opinions about the musical pieces and how their performance went at the local city library. In applying the literature, critical consciousness allows adult learners (e.g., music ensemble members) to ask questions, analyze, and make decisions that will lead to future actions, such as improving the

performance of the music ensemble. Talking and engaging with others allows everyone to develop a deeper understanding of the music ensemble's current situation and what changes are needed to improve the performance of all the ensemble members including the music ensemble instructor. For example, Mercy mentioned: (1) the steel pans looked different in the classroom, the recital hall, and in the main stage, and (2) the dress rehearsal helped her because it allowed her to review the musical pieces on stage prior to the actual performance. Molly also added that the lighting in each location can affect the appearance of the steelpans. The information Mercy discussed is important for future rehearsals. First, the environment can disorient a performer when they move from one location (e.g., classroom) to another (e.g., main stage). Second, the dress rehearsal allows performers to get acquainted with their new environment and allows them to get used to their musical instruments prior to the actual performance. This information is helpful for Kerry because it reminds her that dress rehearsals are important to carry out prior to an actual performance.

<div align="center">Group (Team) Dynamics/Leadership Creates a Welcoming Environment</div>

The last theme of the study is *group (team) dynamics/leadership creates a welcoming environment*. As discussed, to understand how collaborative learning is applied within groups, it is important to understand how group (team) members work and interact with each other. Group dynamics consist of certain characteristics, such as teams, team leadership, and knowledge sharing. Leadership also determines how a team will function in a positive or negative way. A leader influences the team members to work toward and achieve the team's goals.

Certain music ensemble members shared their experiences related to the group dynamics of the music ensemble. These individuals include: (1) Betty, (2) Jackie, (3) Charlie, (4) Sarah, (5)

John, (6) Molly, (7) Sandy, (8) Jack, (9) Amy, (10) Tony, (11) Kerry and (12) Dan. Their

personal experiences help to explain the group dynamics/leadership necessary for collaborative

learning to occur naturally. I also include my observations of certain music ensemble members

displaying group dynamics behaviors.

<u>Betty</u>

Betty discussed her experiences of the group dynamics/leadership within the music

ensemble:

> I think Kerry does a good job keeping us on task, and she never tells you that, or never
> says, "You guys are horrible. I don't want to be doing a concert with you." She never
> picks out people or sections that are struggling in a negative way. She always teaches in a
> positive way. And, I am glad she has some help [teaching assistants], too. She makes
> most of the music decisions, so she is the one who pretty much chooses the songs that we
> do. I think she also allows us, for example, if people say, "This is too fast. Can we do it
> slower?" during practice, and she responds to that. I think she facilitates the rest of the
> group, and she is more open to other suggestions, or she is willing to learn from them. I
> think that is really important.

As the literature discussed, democratic leadership, also known as participative or shared

leadership, is a style, in which all the ideas from team members and peers are considered and

valued equally. Everyone on the team is encouraged to exchange their ideas and opinions. While

the democratic leader encourages the team to share ideas in the decision-making process, the

responsibility for the final decision-making rests with the leader (Gadirajurrett, et al., 2018).

In Betty's discussion about the learning environment of the music ensemble, she stated

that Kerry would not say anything negative to the music ensemble members, such as, "You guys

are horrible. I don't want to be doing a concert with you." Betty also mentioned that if music

ensemble members feel the music practice is going too fast for a particular piece of music, Kerry

will respond to that comment and take any necessary actions. Betty added that Kerry was open to

suggestions and open to learning from others. In applying the literature, Kerry is leading by

democratic leadership (participative or shared leadership), in which ideas from her music

ensemble members and peers are considered and valued. Kerry takes into consideration the

comments, opinions, and feelings of her team members. She would never say anything negative

to hurt their feelings. If people stated that a certain song was played too fast, Kerry would take

appropriate action, such as slowing down the tempo of the musical piece. In summary, Kerry

encourages team members to exchange their ideas and opinions. Kerry, a democratic leader,

wants her team to share ideas with each other, but the final decision-making is hers (Gadirajurrett

et al., 2018).

### Jackie

Jackie discussed her personal experiences of the group dynamics/leadership within the

music ensemble:

> I would say Kerry does an excellent job. She communicates with us really well, and the
> emails are good. We know just what is going on. She just emails us and lets us know
> about that. I think she does a fine job. I really like it she has Tony participate because he
> does an arrangement [musical]. That is really a great thing. It is not that I could ever do
> something like that, but it gets to the idea that it is more of a collaboration to come up
> with a song. When she had us vote for a song, we did that to get the choice of a song.
> That was a good thing. Because you don't want to just assign things, you know, you want
> to have some part in it, you know, at least a vote.

The democratic leadership style or participative style encourages employees or team

members of an organization to be part of the decision-making process. The democratic manager

keeps his or her employees or team members informed about everything that affects their work

and shares decision-making and problem-solving tasks. Democratic leadership can produce high

quality and high quantity work for a long time. Many employees or participants enjoy the trust

they receive and respond with cooperation, team spirit, and high morale (Khan et al., 2015).

Jackie mentioned that she liked Kerry's method of keeping everyone informed by email.

Communication is an important tool in democratic leadership because the democratic manager or

leader keeps his or her employees or team members informed about everything that involves or

affects their work. Tony, the professional musician and music ensemble member, was involved

in introducing a new musical arrangement to the ensemble. Jackie mentioned she liked that type

of collaboration, in which Kerry delegated work responsibilities to others. Jackie also stated that

she liked that Kerry allows the music ensemble members to vote on a particular song. This kind

of trust is welcomed by employees or team members, and when they receive it, they respond

with cooperation, team spirit, and high morale (Khan et al., 2015).

## Charlie

Charlie discussed his experiences of the group dynamics/leadership within the music

ensemble:

> I think that there are certain people who are willing to participate and the more comfortable and familiar you get, the better it is that way. It's a welcoming environment. It is not threatening. There is no pressure to perform at a certain level, which makes it really convenient because I am not always at my best. I am glad nobody is yelling at me because I am not playing well. So that is, you know, that is part of it. That is a big part of it.
> Kerry is good. She is good. She is knowledgeable, you know. I mean, having that expertise, you know you are in good hands. You know she is going to show you how it should be done, and at the same time, she is not, you know, beating you up over it. So, it is not like you are getting, you know, pressured. And you know, if the leader is a super, strong leader and can get everyone jumping and grooving, that is unique. And if you get a group of people together that are with that, you know, then it really is like a social creation.

Kerry's approach to students is that every individual has a talent they can each bring to it [music ensemble]. The cooperation and collaboration with their individual talents makes the whole group better, such as the sum of the parts.

Our music ensemble time builds relationships among the members. It is just that regular time together, a real glue. It's the one longevity, and you are seeing people for years. You see everyone every week come and practice together. There is that camaraderie.

The qualities of a good leader include: (1) *character,* which includes personality, attributes, values, attitudes, appearance, aspirations, and temperament, among others; it is important to understand what aspects contribute to a leader's success; (2) *competence* refers to the abilities, skills, and knowledge relevant to leadership. Competence also refers to the abilities, skills, and knowledge specific to particular roles, professions, and responsibilities of a leader; (3) *context* includes the physical, psychological, social, cultural, and economic environment, as well as the various situations and stresses that a leader may face; and (4) *communication* takes into consideration the leader's vision for the group or organization and his or her style of communication. It is important to recognize that communication involves sending and receiving information, verbally (oral and written words), as well as nonverbally (body language, facial expressions, gestures, etc.; Callahan & Grunberg, 2019).

Charlie mentioned that the learning environment for the music ensemble class was welcoming, comfortable, and non-threatening. Moreover, there was no pressure to perform at a certain level. He also stated that Kerry was technically competent. She did not pressure or ridicule students in any way. She is described as a "super, strong leader who can get everyone jumping and grooving." If I apply the literature, Kerry is a competent leader. She is knowledgeable about music concepts and musical instruments, and she knows how to lead and manage individuals. One of her characteristics is that she knows how to provide a welcoming

and comfortable environment. She also knows how to welcome and nurture students of all ages.

Furthermore, she understands how to communicate effectively with the members of the

ensemble orally (e.g., announcements, in-class instruction, etc.), in writing (emails, posters, etc.),

and nonverbally (e.g., attitude, facial expressions, body language, etc.). Kerry provides the kind

of learning environment that makes everyone want to learn and participate.

<div align="center">Sarah</div>

Sarah discussed her experiences of the group dynamics/leadership within the music

ensemble:

> I think if a learning environment is too restrictive or it is too, you know, "What we are going to do is A, B, C, D," you know, and if it has to be done this way, it does not work. I think they [adult learners] have to be able to interact. People have to feel comfortable with each other. They have to feel comfortable in the classroom, feel comfortable with giving an opinion or kind of having fun of enjoying learning, you know, enjoying the differences in class and what each of us can bring to the class and to each other. The leaders also set the tone for how things are going to be, you know. If people make a suggestion, you know, "Maybe it is easier to do it this way or something," she [Kerry] listens. She could say, "Well, I have had that happen before, and it didn't work, but maybe you could try it this way." You know, because she may have more experience than the rest of us in the group. Well, she says, "That is pretty good. Let us try it and see if it works." And Kerry has been very open to seeing whatever works or asking somebody to get it done.
> 
> Kerry does a lot for the members of the ensemble. For example, Kerry encourages everyone to use the practice room. If the room is locked, she tells everyone to have someone from the music office open the door. If someone missed a practice, she would reach out and ask, "Is everything okay, health-wise? Are you alright?" She cares about everybody having a good experience. She is also willing to come in and help you if you need extra help. She doesn't have to do that, but she will come in and help you with the rhythm or the sticking or any of that stuff.

Participative leadership style involves all members of a team in identifying goals and

procedures or strategies for reaching those goals. It can be seen as a leadership style that relies

heavily on a leader who facilitates rather than issuing orders or making assignments. This process allows the development of additional leaders who can serve the organization in the future. From this perspective, a participative leadership style encourages the active involvement of everyone on the team. People are able to express creativity and demonstrate abilities and talents that might otherwise not be made apparent. The discovery of these hidden talents benefits the work of the entire team (Iqbal et al., 2015).

In applying the literature review to this discussion, Sarah stated that a restrictive environment makes it difficult for people to interact in a learning environment. She pointed out that people have to feel comfortable with each other in the classroom, especially when giving an opinion or having fun and enjoying learning. The leader (Kerry) is also open to ideas or suggestions from the rest of the ensemble. She values the ideas of her music ensemble members, and she tries to apply these ideas when learning difficult concepts. Kerry is a caring individual in that she will reach out to others if they miss a practice. She is willing to spend extra time with ensemble members who have difficulties in rhythms or stick techniques. Kerry's participative leadership style involves all team members by including their ideas and suggestions, encouraging the active involvement of everyone on the team, caring for the welfare of others, and allowing the development of additional leaders for future projects (Iqbal et al., 2015).

I also observed Sarah in the hallway talking with Max prior to our performance on the main stage.

> Our music ensemble was the first group to perform. I noticed the music ensemble members were talking with each other prior to our performance. For example, Sarah was talking with Max in the hallway. Max was sitting on a chair, and Sarah was standing in front of him. Max was explaining to Sarah about the various band directors, and where they attended university. Max was mentioning that one of the band directors played jazz trombone. Sarah was listening to Max's conversation.

Trust affects the sharing of tacit knowledge in interpersonal relationships. High-level trust decreases conflicts between individuals and between group members. Members can trust in each other's good intentions and motives without suspicions. As a result of trust, conflicts can be avoided or at least solved more constructively and effectively (Savolainen, 2019).  Max and Sarah have attained a degree of trust that allows them to talk about other things besides music in the classroom. According to the literature, high-level trust decreases conflicts between individuals and group members. If there was a conflict between the music ensemble group members, it could be avoided or solved more constructively (Savolainen, 2019).

Sarah gave me another example of how the group should function in the music ensemble:

So, you are part of the group. So, you can't play louder than anybody else. You have to play your role. If you want to make music, you got to be at the same dynamic, you know, you have to be able to play the notes. You have to feel it, you know, and you have to plan ahead with confidence. If you do something like you start to screw up, or you get lost, the person next to you is going to have to hear you. So, it is kind of group dynamics, like we have in social work group dynamics, but you do become a group. You become an ensemble, which is more than just a group of people playing the same song.

For a team to work effectively, the team members must possess specific knowledge, skills, and attitudes, such as monitoring each other's performance, knowledge of their own and their teammates' task responsibilities, and a positive attitude toward working in a team (Baker, Day, & Salas, 2006). Sarah pointed out that everyone works together as a team in the music ensemble and not just a group of isolated individuals. Team members (e.g., music ensemble members) must possess certain knowledge, skills, and attitudes, such as the ability to monitor other team members' performances and work toward a common goal (e.g., performing successfully as a unified music ensemble). Working in a group is more than just working with

people; it involves working together as one harmonious body. Everyone has to work and

cooperate, not just for the success of one individual, but for all the members of the music

ensemble to succeed.

<u>John</u>

John shared his experiences of the group dynamics/leadership within the music ensemble:

> Kerry had the class dance to Calypso rhythm. Kerry is trying to say to the class, "Come on, get those stiff legs moving." You know, this is like an exercise class, you know. You got to motivate them, and that is one way you got to do [it] in a classroom (i.e., getting the music ensemble members to dance) to make the class motivating. I am sure a lot of people who teach steel pan, they let these kids be free will. You got to let them have free will, you know, to understand that style of music and then to be able to play. Then, you get the feel of how your part fits in that.
> Kerry does well for those who are coming into the class as newcomers. She handles them like, "You are a part of this group, and I am going to make sure you learn." Kerry appreciates how other ensemble members help others, especially, understanding music and playing rhythms with the sticks. Kerry treats everyone equally. She treats them like, "These are my students."
> Kerry is very knowledgeable. I had questions, and I asked her, "What can you do to help with this little technical passage or something?" She would show me a sticking pattern. It is like, "That makes sense." I was doing the opposite. That is a big influence for me because she knows that stuff. She knows every instrument in the band.

Team leaders have a key opportunity to change and influence the direction of the team.

By providing guidance and developing skills, leaders can shape the team's processes, behavior,

and performance. They may use a number of methods, such as conducting briefings,

emphasizing shared goals, and energizing and engaging team members (Reyes et al., 2019). In

John's discussion, he stated that, through Kerry's leadership, she is attempting to get the energy

out of the music ensemble by having the members dance to Caribbean music. One way of

motivating the students was to let the ensemble members dance and allow them freedom (i.e.,

free will) to express themselves. Having the students dance allows them to understand how the

music fits into the music ensemble members' playing of their individual instruments. It also

helps them to understand their roles as participants, as well as how everyone fits together as one

music ensemble. John also stated that Kerry welcomes new students, treats everyone equally, and

is very knowledgeable of music and the band instruments. Team leaders, such as Kerry, have a

responsibility and a role to change and influence the direction of the team. She can shape the

team's processes, behavior, and performance.

<u>Molly</u>

Molly provided her insight into the group dynamics/leadership of the music ensemble:

I think Kerry does an excellent job of getting people up and playing and feeling "uncomfortable" playing. From going from not ever playing anything ever or not ever playing a pan [steelpan], in some cases, to being comfortable enough to play in a concert. That is a pretty good leap for people who have never done it.

What she does is she starts out, and she shows people how to hold their [steel pan] sticks, and we go over some basic skills scales very slowly. So maybe eight counts on one note, moving through the scale up and down, and then it would drop down to four beats per note and so forth and so on. And we would do that for several sessions. And at the same time toward the end of the class, we were also starting on a piece of music, so that we feel like we have accomplished something because, "Hey, I am really playing a piece of music."

And Kerry is also available for half an hour or so before the class starts for any questions that anybody has. And while back on the bass (bass instrument) side, I haven't needed that much assistance, since I have been doing it a while longer than the people who are just starting. I know that help is there, and if I ever need it, I don't hesitate to ask.

Kerry engages the talents of the group. She picks pieces that we can learn. In addition to being encouraged, she has an expectation. She expects quality out of us, no question, but she never sets the goal so high we can't do it. Overall, everyone has fun, and everyone wants to come back. And there are a lot of times she has done some of the musical arrangements, too. So, she knows the music intimately. She is not just pointing at you and saying, "Just figure it out."

I don't like to be abused by inconsiderate instructors. I don't want to go to class. I sometimes have to make myself go.

Great companies or organizations have a "we culture." Furthermore, they succeed in developing a strong culture with a high degree of "we-consciousness." In such a culture, the employees or members are typically deeply involved at the tactical and operational levels to improve and develop the organization and how it works. Great companies or organizations have strong relations between management, who are sometimes the owners and the employees; this provides a breeding ground for good internal relations that lead to better knowledge sharing. Companies or organizations that emphasize the importance of collective knowledge sharing give their employees responsibility and ensure that everyone can contribute (Brondum et al., 2015).

Molly described Kerry's leadership style as making everyone comfortable no matter how awkward or uncomfortable an individual might be, especially reading music and playing an instrument for the first time. Molly stated that Kerry works with ensemble members on how to hold their sticks and how to do basic scales, as well as providing individual instruction before or after class. The leader gets every member involved and encourages everyone to contribute to a common goal (we culture). Treating people with respect allows people to listen, learn, and follow others. This leadership style enables collective knowledge sharing. Kerry created a comfortable and non-threatening environment that encourages people to take risks and not feel afraid to fail.

I observed Molly talking during the announcement period prior to class instruction. Kerry allows other students to make personal announcements to the rest of the class:

> Molly was explaining to everyone that she and her husband, Max, will be flying out to their new home in Nevada during Spring Break. They will meet the moving company and supervise the moving company in unloading their furniture into their new home. After the moving company completes their job, Molly and Max will return in order to practice with the music ensemble. Kerry explained to everyone that she will be around in the university if anyone needs musical help, and the music ensemble will meet during Spring Break.

I observed Molly talking with Betty, Sandy, and Mercy in the backstage area prior to our music ensemble performance:

> Molly was standing in the backstage with Betty, Sandy, and Mercy. They were waiting to perform on the main stage. People were gathering in the audience and sitting down. During that time, Molly was mentioning that her son was graduating from university in music studies, and he will be attending graduate school. Everyone in the group was listening as Molly talked.

As discussed, for knowledge sharing to take place, the organizational culture requires a *trusting atmosphere*, so everyone feels comfortable about sharing their thoughts and ideas (Block, 2019). Trust is important for any fruitful communication and meaningful exchange of thoughts and ideas. People do not share knowledge with colleagues they do not trust (Basit-Memon et al., 2018). Molly mentioned her personal information, such as the logistics of moving out to Nevada during Spring Break. She also talked with various members in the backstage prior to the music ensemble performance about her son graduating from university. Molly feels the class has a trusting atmosphere, so she feels comfortable about sharing her thoughts and ideas (Block, 2019). Being in a trusting atmosphere signifies that Molly is comfortable and happy as an adult learner in the class, and she is willing to participate in the class fully and actively.

<u>Sandy</u>

Sandy shared her thoughts about the group dynamics/leadership of the music ensemble:

> Kerry is very patient, and she is also non-judgmental. If you did something wrong, she will show you how to do it correctly, but it is not like you did a bad thing. But she breaks it down with people either individually or in small groups. So, each group gets to spread their wings and try to their part without being a part of the ensemble. And, so she will give them hints, such as "Try to do it this way," and give people opportunities to repeat measures.

Under Kerry's leadership and teaching style, I feel encouraged. I feel as though I can learn it (the music and instrument). I can become better. I am valued, and I am part of the ensemble.

In the opposite situation, with a dictatorial learning and punishment style, I feel punished, and it makes my music learning unpleasant. There were times when we [Molly and I] were having the most difficulties with the ensemble [different music ensemble], and you would feel dreadful about going to rehearsal. On the other hand, I always look forward to going to Kerry's class. It was always fun. I had a feeling I was learning things, and I felt like I was welcomed as part of the group.

When people are in groups, it is vital to belong to a group of familiar, cooperative people who care about one's welfare. Therefore, there is an inclination to form and sustain social bonds with others in order to defend oneself and protect one's resources against external threats (Baumeister & Leary, 1995). Researchers discovered that adults becoming members of a gardening group promoted a benefit of increased social connectedness compared to non-members. The social benefits of gardening included meeting new people, making and maintaining friendships, and having a shared interest to connect with other people (Scott et al., 2020). Sandy mentioned that Kerry is very patient and non-judgmental. She does not ridicule people for making mistakes but tries to show them the correct way. Sandy also stated that she feels encouraged and valued as a member of the music ensemble. She would not feel the same way if the instructor was dictatorial and punished others for making mistakes. The literature stated that people want to belong to groups, especially ones that care about others' welfare. Groups (e.g., gardening) also have benefits, such as meeting new people, making and maintaining friendships, and have a shared interest with others. Sandy joined the music ensemble for the reasons mentioned above (i.e., wanting to be part of a group, making and maintaining new friendships, and learning music with others). Kerry's leadership and teaching

style allows Sandy and others to be part of the music ensemble in a comfortable and

encouraging way.

<p style="text-align:center">Jack and Amy</p>

Jack and Amy sat together and shared their personal experiences about the group

dynamics/leadership within the music ensemble. Jack shared his personal experiences first:

> Regarding Kerry's leadership and teaching style, I would say she is very organized. She plans out how the rehearsal time is, like an hour and a half. She plans it down to the "T." Especially when we are just learning the song, she will be like, "We will work on the scale for these three minutes, then we will work on the arpeggio for these three minutes, and then we will work on more quickly locating whether there are any accidentals, such as sharps or flats on the steelpan." So, I would say she is very organized.

Next, Amy shared her personal experiences:

> I think she [Kerry] has been teaching steelpan ensemble for a while. She knows how to deal with people who are not familiar with the instrument or do not read music that well. She has a certain level of patience, which I aspire to. I think Kerry promotes a positive outcome from whatever happens in the group. She usually reinforces a lot of positive interaction with the group. If they group does or does not do something well, she will usually encourage them. There is usually a lot of encouragement throughout the group.

Shamir and Eilam (2005) researched that authentic leaders do not fake their leadership.

They do not pretend to be leaders just because they are in a leadership position, for example, as a

result of an appointment to a higher management position. They do not work on developing an

image or persona of a leader. For authentic leaders, performing a leadership function and related

activities are genuine acts. It is partly what they feel to be their "true" or "real" self. Moreover,

authentic leaders do not take on a leadership role or engage in leadership activities for any

prestige, status, honor, or other personal rewards they may reap. They lead from conviction.

They have a cause or mission they want to promote, and they engage in an effective leadership style to promote this cause or mission.

Jack talked about Kerry as a genuine leader. She is organized, and she knows what she wants to teach in each class period. She is technically competent, and she understands what needs to be accomplished to reach her goals. Amy also noted that Kerry is organized and knows how to handle different personalities. In applying the literature, Kerry is an authentic leader. She was born with leadership abilities, such as being well-organized, knowledgeable, and able to handle various personalities. Kerry encourages others and always leads to a positive outcome within the group. She believes in her true self and her mission, which is to teach and lead adult learners in performing within a steel band music ensemble. Despite the fact that a majority of her students in the music ensemble were not able to read music or play their instruments accurately, she took on the mission to teach and lead them, so that they could perform in front of various audiences. She is not looking for fame or honor, but simply believing in herself and accomplishing her mission as an authentic leader.

<p style="text-align:center;">Tony</p>

Tony discussed his personal experiences related to the group dynamics/ leadership in the music ensemble. Kerry also allowed and encouraged Tony to write and compose new musical arrangements for the music ensemble:

> I wrote a solo for my son, David, in one of the songs I arranged. I think you stepped into the right thing where it is also fun. I think it is now the plan to get more people in the community involved, you know, so they are not intimidated by not being a music major or not being musically advanced. So, she [Kerry] is leading in that direction. When she rehearses, she is just kind of drilling in those melodies one at a time. That is how they do it in Trinidad. Most of the people don't read music. The leader will play that part for them, and they will just play along with it, and that is how they will learn.

Kerry asks for suggestions from the ensemble, or she will ask if a tempo is too fast or not. She really gets a feel of the group. She will ask people to ask questions. I mean, many instructors would not do that. That is an area she has a rapport with us that can be intimidating. She can be firm when she has to. If someone is acting up or not paying attention, she can reprimand them.

From my discussion with Tony, it is clear that Kerry has allowed him to do musical arrangements for the music ensemble. Kerry does arrangements for most of the musical compositions, but she has allowed members from the music ensemble to contribute musical arrangements as well. She has also encouraged and allowed individuals like David to do solos as part of these musical arrangements. Tony stated that she encourages suggestions and questions from the members of the ensemble. She also can be stern if she needs to be.

In a research study, virtual project members are experts within their respective fields. Project members often have several years of experience and are ready to take responsibility to achieve a joint task. Project members often welcome alternative leadership approaches that offer the opportunity for shared leadership responsibility. Project members who are experts within their respective fields and whose knowledge exceeds that of the project leader, are often interested in exerting (partial) leadership influence and actively helping to shape the project. Formal leaders who make use of the collective leadership potential in the project strengthen their teams as opposed to relying on themselves as the primary source of leadership. Sharing leadership responsibility in a virtual team benefits not only for the interests of the project members but also the project leaders (Hoegl & Muethel, 2016).

Regarding the discussion with Tony, Kerry allowed Tony to help with the musical arrangements. She is not afraid to share her leadership role with him. There will be times when other members of the music ensemble have expertise and experience that exceed Kerry's, and

she embraces and welcomes that expertise rather than fearing or opposing it. A good leader

knows when to share the leadership with team members. By encouraging others to participate in

leadership roles, the leader (Kerry) is showing others she is not afraid of sharing power, and she

is tapping the expertise and resources of other talented individuals. This helps to provide a

positive learning environment and encourages other music ensemble members to not be afraid to

participate as well. Enthusiasm and respect for the leader will make the music ensemble better

than before through energizing everyone to achieve a mutual and significant goal.

<u>Kerry</u>

Kerry discussed her personal leadership and teaching philosophy within the music

ensemble.

> I like teamwork. I like [it] when people are in, like an open setting, where they are free, and they feel comfortable about speaking. Since I started teaching children, I have always noticed how many amazing ideas they have. And because I only know so much, you know, each one of us has different ideas and thoughts. So, I actually enjoy our music ensemble because there are so many people who have lived a type of lifestyle that is so different from mine. So just naturally, there is just so much that they know that I don't know.
> I try to pay attention to each individual and understand their background and capabilities and not to have expectations. They are all unique in their own ways. My focus is for the group to have fun and have a great time making music together because that is what music is about. There are times when we have to get serious. I can be nice, but I can also be stern. Something that I try to do is to be prepared and think ahead of time, so I won't be encountering last-minute issues.

As previously mentioned, effective team leaders engage team members in generating

ideas and setting team goals (Fleishman et al., 1991). Teams are also likely to be the primary

vehicle through which internal and external knowledge is shared in an organization. When teams

become a regular occurrence in an organization, knowledge sharing between and across the

teams becomes important. Team creativity is also regarded as a process and an outcome that emphasizes the role of knowledge sharing. Team creativity will not occur until a culture of knowledge sharing exists within the team (Solek-Borowska, 2018).

Kerry discussed that she liked teamwork and an environment where people are in an open setting and are free to speak. She also mentioned that children and adults have amazing ideas because they live different lifestyles and possess unique knowledge and experiences. She emphasized she wants everyone to have fun in making music together. At the same time, it is important for an effective team leader, such as Kerry, to recognize the different talents and ideas of her team members. She can tap into her team members for internal (within the classroom) and external (outside the classroom) knowledge and, thereby, help her ensemble reach outstanding achievements. Sharing knowledge within the music ensemble will help everyone to grow and succeed. Team creativity will also result when knowledge sharing exists within the music ensemble.

<u>Dan</u>

Dan explained his experiences of the group dynamics/leadership within the music ensemble:

> She [Kerry] is very encouraging. Every time she says something encouraging, I always make a joke out of it because she is never going to make you feel bad if you mess up. She goes, "That's the idea." If you don't get it right, but if you get really close, or even if you are far, she says, "Yes, that's the idea."
> I feel good about her. I think the other people in the class feel the same way as well. Sometimes you ask or will walk out of the classroom after class is over and everyone's happy and excited about it. Kerry is not overbearing. She is obviously gifted at what she does. She is a professional. She teaches in a way that, "You have to find a way that works for you."

The characteristics of an adult learner's learning environment should include a climate of respect, active participation of learners, opportunities to draw upon prior experiences, collaborative inquiry, and empowerment through reflection and action. This environment should be created to respect and value the adult learner's knowledge and experiences and empowers them to act (Gregson & Sturko, 2007). Dan stated that Kerry encourages others in the classroom, and people feel good and excited when they leave the classroom after class. Kerry provides and supports a climate of respect and active participation of the adult learners. She creates opportunities for others to draw on their knowledge and experiences and empowers them to act.

I observed Dan talking with Max and Sandy about his personal hobbies after class was over:

> After class, I was helping Max (retired professor) in returning certain cello pans to the stage, since one of the steel pan performers was doing a recital. Afterwards, Max and I met Dan and Sandy in the hallway. Max started talking about what he will be doing after he moves out of the state of Illinois (he is moving to another state). He also stated he had some master's students who needed to finish up some things with him. Additionally, Max said he designed electronic circuits, and he showed pictures of his designs through his smartphone. Dan had a similar hobby, and he showed a picture of his electronics lab at his home through his smartphone. The two individuals started to talk about their own interests in electronics. Sandy and I were just listening to their conversations.

Gregson and Sturko (2007) stated that an adult learner's environment should include a climate of respect and active participation. Dan said in his previous dialogue, "Sometimes you ask or will walk out of the classroom after class is over, and everyone's happy and excited about it." Kerry created a learning environment, in which people feel respected and want to actively participate. After everyone left class, Max, Dan, and Sandy were in such good spirits that they wanted to have a conversation in the hallway outside of the classroom. They started talking about items not related to music but issues to keep the human connections together prior to heading

home. This kind of relationship is important in building strong bonds between others especially within a music ensemble.

<p style="text-align:center">Chapter Summary</p>

The first theme, *collaborative learning solves new problems/develops new ideas*, captures how an individual can meet other members in a group, exchange ideas, acquire new knowledge, and solve an important problem for both the individual and the other group members or develop new ideas. For example, Betty described how she learned her collaboration skills at her workplace and then used them to create a color-coded music sheet system for a student who could not read music within the music ensemble. Another example was Jack, who met other music students after class and to jam with their musical instruments and, thus create novel music. A final example was John playing in a jazz trio and discussing with his fellow instrumentalists on how to play a song (e.g., Duke Ellington/swing beat style).

The second theme*, informal learning fuels collaborative learning with new ideas*, represents a field of adult learning in which adult learners learn from other adult learners outside the formal classroom. It supports collaborative learning because learning can occur at anytime and anywhere. As previously discussed, informal learning is where formal education no longer comprises the majority of our learning. Instead, learning occurs in a variety of other ways, such as personal networks and through completion of work-related tasks (Siemens, 2005). For example, Betty discussed with her brother-in-law and learned the advantages and disadvantages of practicing alone versus practicing with others. Another example was Charlie learning music theory while attending his daughters' violin class. A final example included Amy learning new drumming styles through social media (e.g., YouTube).

The third theme of the study is *cooperative learning helps others to learn difficult ideas*, which refers how students can actively work and learn together in small groups to accomplish shared goals in a mutually helpful manner (Davidson & Major, 2014). This process encourages students to seek outcomes that are beneficial to everyone. Through cooperative learning, students discuss subject material with each other, help one another understand it, and encourage each other to work hard. Individual performance is checked regularly to ensure all students are learning and contributing to the group (Johnson & Johnson, 1999). For example, Charlie said he received help Betty and Jackie when playing music together. Another example was Jackie asking questions to other students after the music ensemble class was over. In a final example, Jack helped students by identifying which musical notes they needed to play.

The fourth theme discovered in the study is *reflection improves collaborative learning*. As previously discussed in the literature review, reflection refers to some phenomenon subjected to thorough consideration during which one's thought dwells for a long period of time on an object to obtain a better and deeper understanding of it. The object of reflection can be one's own activity or any other kind of object. It is possible to reflect upon something quite different from oneself (e.g., the origin of the earth, the nature of electricity, etc.; Bengtsson, 1995). One example was how Amy reflected and thought how to coordinate with other instrumentalists and in order to successfully perform at a successful recital. A second example was Tony reflecting and obtaining solutions to problems while he was shoveling snow or walking in the backyard. A final example was Kerry reflecting and thinking about her lesson plans while driving to and from work.

The final theme discovered in the study is group (team) dynamics/leadership creates a welcoming environment. Many participants discussed about Kerry's personal leadership and

teaching style that created a positive learning environment for the participants. Comments of various participants about Kerry included: (1) she communicates well to the class; (2) she provides a welcoming environment; (3) she is knowledgeable; (4) she engages the talents of the group; (5) she is patient and non-judgmental; (6) she is organized; (7) she has a certain level of patience; (8) she asks for suggestions from the class; (9) she is very encouraging; and (10) she is not overbearing. Trust and knowledge sharing were also discussed as a result of Kerry's ability to create a warm and welcoming environment. Personal observations of the participants were included, as well.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

In this study, I interviewed 12 ensemble music members. My goal was to investigate how these ensemble members used collaborative learning in their academic (i.e., music), personal, and professional lives. In this study I sought to answer the following research questions:

1. According to the participants, what are the benefits of collaborative learning?

2. How does collaborative learning contribute to adult learners' experiences in the classroom?

3. What significant knowledge and experiences do adult learners bring to collaborative learning?

This chapter includes an overview of the significant findings of the study, a discussion of the research questions in relation to the existing literature on this topic of interest, conclusions, implications, and recommendations, contributions to the literature, implications for adult education research, recommendations for future research, and researcher's reflections.

Discussion of Research Questions

Research Question 1:
According to the participants, what are the benefits of collaborative learning?

Two themes emerged as the participants described their experiences regarding the benefits of collaborative learning: (1) collaborative learning solves new problems; and (2) collaborative learning develops new ideas.

Collaborative Learning Solves New Problems

Certain participants in the study stated that their collaborative learning experiences consisted of solving common problems by discussing with others, exchanging ideas, and then arriving at solutions by mutual consensus. These collaborative learning activities took place in the participants' professional workplaces, in the music ensemble classrooms, or in other academic classes. For example, one participant mentioned about another student who was having trouble reading her music in the music class. The participant discussed the problem with other students and then listened to the feedback their colleagues provided. Through collaborative learning, the students created a color-coded music system which allowed the troubled student to play her instrument by looking at the color-coded music and identify where to hit the musical notes inside her steelpan. Klemm (1994) stated that collaborative learning takes place when each group member contributes their own personal experience, information, perspective, insight, skills, and attitudes to improve the learning outcomes of others. The group's collective learning is eventually possessed by each individual. The interaction among students also generates extra activities (explanation, disagreement, mutual regulation; Paul, 2016). Awedh et al. (2014) also stated that collaborative learning involves sharing knowledge and experiences, in which students teach and learn from each other and develop interdependence. Students are able to efficiently obtain a huge amount of information, which is useful to students in generating new ideas for effective learning. The study's findings concur with the literature.

Another participant in the study described his collaborative learning experiences by "bouncing ideas off" of other individuals. When he was confronted by a problem, he made suggestions and talked with others about their ideas. Another participant was confronted by a

problem at his workplace.  He discussed the problem with his work colleagues, and he tried various ideas through experimentation and reflected on his experiences. If one idea didn't work, he would discard that idea and move on to another one. These findings concur with Kolb (1984), who stated that experiential learning complements collaborative learning, in which the here-and-now concrete experiences validate and test abstract concepts. Information feedback provides the basis for the continuous process of goal-directed action and evaluation of the consequences of the actions. Problem-based learning also allows students to work in groups and pause to reflect on the research data they collected, to generate questions about that data, and to hypothesize about the underlying mechanism that might help explain it (Hmelo-Silver & Eberbach, 2012).

One participant described his collaborative learning experience as helping another colleague fine-tune his creative work. For example, the participant's friend created a musical arrangement and wrote that idea down on paper. That same individual tried to have others in the music ensemble perform their musical arrangement, but it did not sound exactly to the composer's expectation. The participant played his friend's musical arrangement and made certain adjustments to make the piece sound better. He exchanged ideas with his friend to let him know what needed to be done to make the musical piece easier to play for the rest of the music ensemble. These findings concur with the research of Kuo et al. (2017), in which students found group work to be enjoyable, effective, educational, and interesting. The researchers also discovered that students engaged in interaction, information sharing, and idea negotiation to achieve consensus. Exchanging ideas through discussion and communication helps students resolve disagreements among classmates or overcome challenges during collaborative group work.

Collaborative Learning Develops New Ideas

Many participants described their collaborative learning experiences as meeting other students, discussing and exchanging new ideas, and creating a new idea as the final product through consensus. For example, one participant mentioned he met other musicians after a music class, and they all just "jammed" or played their musical instruments together in an empty classroom, in which they created a new kind of music together. Another example is a participant who mentioned she needed to prepare for a musical recital, and she enlisted the help of other musicians to assist in her performance. She and her colleagues discussed ideas and made suggestions to enhance her music recital. In a final example, a participant commented that all the ensemble members were invited to create their own novel sounds in the classroom and play on different everyday utensils—such as spoons or pie pans—for a musical piece. These findings concur with Pun (2012), who researched collaborative learning and creativity in students assigned to work in small groups within a community of learners. Nearly all of them shared ideas, did things together, and helped each other for the benefit of the group. A majority of them learned from one another's talent and thereby enhanced their creative thinking skills and interests. Learners should be exposed to materials, experiences, and situations through which they can inductively build their own knowledge.

Collaborative learning can also be used in helping to make a better group decision through consensus. One participant said that members of the music class were trying to decide what musical piece they should perform. One person suggested an idea of a particular musical piece. Other individuals then discussed how to play their instruments on that piece, such as whether they should dance while playing their musical instruments. Another individual discussed

the types of clothing they should wear while they were performing. Overall, the input from various individuals helped the group to decide whether they should perform this musical piece. These findings concur with the research of Menekse and Chi (2018), in which "the interactive mode" of collaborative learning refers to instructional settings that allow a group of learners to jointly develop knowledge and understanding beyond the information contained in given materials. Collaborative groups should provide and receive feedback, ask each other questions, propose arguments and rebuttals, and elaborate on each other's ideas. Incorporating other individuals' contributions leads to the potential of creating new knowledge that neither individuals could have generated by working alone.

Collaborative learning is also used to gain understanding through critique and feedback from others. For example, one participant reported that by having an ongoing discussion with her instructor and graduate students after playing a musical piece on her instrument, she was able to receive feedback on where she was having difficulties while playing. She was also able to inform her instructor what kinds of difficulties she was encountering, which helped the instructor understand where she needed to focus her efforts in teaching the student and the rest of the music ensemble. Another example was a participant who was playing in a jazz trio. He kept asking questions of his other instrumentalists about whether he was playing the drums at the right tempo or preferred musical style. He also made suggestions for introducing different kinds of music into the musical piece. Both examples indicate an exchange of discussion and ideas, as well as mutual understanding and consensus in both examples. These findings concur that collaborative learning is defined as two or more people learning something together, such as capitalizing on one another's resources and asking one another for information. Collaboration and the sharing of information can make learning more efficient (Blum et al., 2017). The findings are also in

agreement with Chandra (2015), in which peer learning is a type of collaborative learning that involves students working in pairs or small groups to discuss concepts or to find solutions to problems. Many instructors found that through peer instruction, students teach other by addressing misunderstandings and clarifying misconceptions.

<p style="text-align:center">Research Question #2:<br/>How does collaborative learning contribute to<br/>adult learners' experiences in the classroom?</p>

Collaborative learning allows for creativity and critical thinking. One participant in the study mentioned she worked with another instrumentalist and through various discussions, she created a musical arrangement incorporating two different music styles. She also discussed her experiences in creating a musical video with another graduate student. In both examples, collaborative learning allows for the creation of new ideas and the use of critical thinking. Collaborative learning involves creative thinking, and creativity involves a collaborative process to generate new ideas through the results of social processes, taking into account both group interaction and efficiency in group work (Astutik et al., 2016). Creativity can also be thought of as raw ideas, new ways of looking at things, new methods, or new products that possess value (Kushwaha & Tewari, 2019). The collaboration process also contributes to creative thinking through various interactions. Participants share information about new ideas. The second stage includes collaborative activity, in which students in groups discuss and select the most interesting suggestions. Students also plan their work, organize the discussions, and make decisions. The third and final stage of the process becomes the stage of reflection on results and process. The students provide feedback and reflection on their work (Fedorinova et al., 2018). The findings of this study concur with the literature.

Collaborative learning allows adult learners to express their thoughts and opinions in a group or community setting, which is very important to adult learners. "Having one's voice heard" is a commonly heard expression, particularly in a group or community meeting. We value everyone's voice, especially when important decisions are made within a group. One of this study's findings was that the instructor asked the music ensemble members to express their opinions about how the practice sessions were going and whether they were ready and confident enough to perform at a major recital. This session allowed the ensemble members to reflect on their past experiences and provide feedback on the ensemble's progress. Learning is an active, constructive process rather than the process of knowledge acquisition. Teaching involves supporting the learner's constructive processing of understanding, rather than delivering information to the learner. In constructivism, teaching is a learning-teaching concept rather than a teaching-learning concept. The learner comes first, and the teacher comes second, so that the learner is the center of learning (Kim, 2005). Learning is not only a transfer of knowledge from one individual to another; it is a transformational process in which new ideas, experiences, and personal judgments are integrated into one's new knowledge (Mukan et al., 2017). The findings of the study are also in agreement with the literature.

Collaborative learning promotes growth and change; it allows for adult learners to look at new perspectives and ideas during discussions. One participant described his experience in working with the music ensemble instructor after he created a musical composition for the rest of the music ensemble. The music instructor asked him to make adjustments to the music, such as reducing the number of measures, slowing the tempo, etc. The participant accommodated the instructor's requests, but there were certain places within the musical composition that he didn't want to revise, and he provided his reasons. The participant stated that collaborative learning

involves "give and take." Researchers in one study discovered that through group work, students engaged in interaction, information sharing, and idea negotiation to achieve consensus. Idea exchange through discussion and communication helped classmates resolve disagreements or overcome challenges during collaborative group work (Kuo et al., 2017). This finding concurs with the literature.

Collaborative learning suggests a way of respecting other individuals' opinions and ideas and recognizes them as active participants in a group. One participant in the study worked as a clinical social worker, and she proposed the idea of having two rival youth gangs play softball with each other. After getting the police, the two rival gangs, and herself together for a major discussion, she gradually gave responsibilities and tasks to the rival gang members. This method allowed the gang members to share in the group decision-making and involved them in participating as active members and did not allow the adults (i.e., the police and other authorities) to tell them what to do. The gang members gained an interest in consistently attending future meetings that eventually led to a successful baseball game. The findings are in agreement with the research showing that collaborative learning suggests a way of dealing with people that respects and highlights group members' abilities and contributions. It allows a sharing of authority and responsibility among group members for the group's actions. The underlying principle of collaborative learning is based on consensus-building through cooperation by group members, in contrast to competition (Laal & Laal, 2012).

Collaborative learning allows knowledge sharing to take place within a group. One participant in the study liked to talk about her personal activities and make non-class-related announcements before the music class started. She would also make suggestions on how to understand music theory concepts and offer help with sticking techniques during the class

sessions. Knowledge sharing is the process by which individuals share explicit and tacit knowledge, and they work with others to create new knowledge. This process is important in transforming individual knowledge into organizational knowledge. The effectiveness of an organization can be strengthened when people pass information, good practices, tips, experience, and lessons learnt (Solek-Borowska, 2018). For knowledge-sharing to take place, the organizational culture requires a trusting atmosphere, so everyone feels comfortable about sharing their thoughts and ideas (Block, 2019). Trust is important for any fruitful communication and meaningful exchange of thoughts and ideas. People do not share knowledge with colleagues whom they do not trust (Basit-Memon et al., 2018). This study's finding agrees with the literature.

Collaborative learning allows for problem-based learning. One participant in the study mentioned that when she was working as a social worker, she had a young boy who was physically handicapped, but he wanted to play the drums. She consulted with two engineers and after much discussion and idea exchanges, the engineers were able to construct a spring-loaded device that was attached to the boy's head. The boy manipulated the device by bobbing his head back and forth and hitting the drum with it. This finding agrees with the research showing that problem-based learning may involve individual and group activities, stimulating and inciting curiosity, motivation, self-guided study, and personal and group reflection. The problem that serves as the initial source of learning may be furnished by the instructor or proposed by the students. Being a problem based on real life, students will be motivated to provide an accurate analysis and definition in understanding its nature and the necessity for solving the problem (Gorghiu et al., 2015).

Research Question #3:
What significant knowledge and experiences do adult learners
bring to collaborative learning?

The participants in the study brought their informal learning experiences to collaborative learning. As discussed earlier, informal learning provides the ideas that serve as fuel for collaborative learning. Participants who constantly study actually improve themselves and are able to provide new ideas and understanding in collaborative learning. For example, one participant described how, through a conversation with her brother-in-law, she learned that practicing music alone versus practicing with a musical group can have various advantages and disadvantages. This participant also watched various videos on steel bands and learned how the performers played their instruments. Another participant mentioned how he read trade journals to keep up on the latest trends and technologies in his industry. It allowed him to recommend the best technological products for his customers. A different participant mentioned that he learned music theory by attending his daughters' violin lessons. This informal learning taught the participant to understand how to read his music and play his musical instrument better. A fourth participant stated that she listened to musical clips and other ideas on YouTube or Instagram through her smart phone. This technique allowed the participant to play new grooves on the drums for the music ensemble. A final participant, who arranged music for the music ensemble, explained that he liked to read self-help books and receive help from the music instructor when he was learning a musical-arranging software. These examples illustrate informal learning, in which formal education no longer comprises the majority of learning. Informal learning is self-directed, where students have flexibility in what and how they learn. It is learning that students undertake without necessarily being explicitly asked to engage in it (Lai & Smith, 2018). Free-

choice learning, a form of informal learning, occurs during visits to museums, when watching television, reading newspapers, talking with friends, attending plays, etc. It tends to be non-linear, it is personally motivated, and it involves choice on the part of the learner as to when, where, with whom, and what to learn (Falk & Dierking, 2018). The findings of this study support the literature.

The participants bring their work experiences to collaborative learning. One participant, a nursing practitioner, described her work experiences at a local hospital. She saw patients in the hospital, interacting with nursing staff and doctors, and bridging the gap between the doctors and patients. Another participant worked as an information technology manager within the local university. He would check all the classrooms and make sure they had the latest state-of-the-art smart technology, such as automated projector and podium. He would also interact with the professors to find out what kinds of technological support they needed when teaching in the classroom. These findings concur with informal learning precepts, which can include problem-solving, observing, and working with more experienced co-workers, informal chats, and moving between jobs within the same work organization (Halliday-Wynes & Beddie, 2009).

The participants bring their cooperative learning experiences to collaborative learning. Sometimes a group member will have difficulty in understanding a musical concept, so other group members assist the group member by providing instruction and moral support. For example, the music ensemble had university music majors work as assistant teaching assistants, helping music ensemble students in understanding music theory concepts and showing them how to play their instruments. Other students helped another student (7th grader) understand where the musical notes were located by writing them in his steelpan. Another participant stated she asked a music major to teach her music theory, since the university didn't offer music theory classes to

non-music majors. One participant reported that a graduate music student practiced with her and other students in the music ensemble. It helped her to understand the various playing techniques of the steelpan. All these findings show and agree that in cooperative learning, students are expected to interact with members of their group, share ideas and materials, support and encourage each other's academic achievement, orally explain and elaborate concepts and strategies being learned, and hold each other accountable for learning and completing the assignment (Johnson et al., 1991). In summary, cooperative learning allows students to discuss subject material with each other, help one another understand it, and encourage each other to work hard. Individual performance is checked regularly to ensure all students are learning and contributing to the group (Johnson & Johnson, 1999).

The participants bring their reflective learning experiences to collaborative learning. Reflection refers to some phenomenon subjected to thorough consideration during which one's thought dwells for a long period of time on an object to obtain a better and deeper understanding of it (Bengtsson, 1995). In the case of the music ensemble members, reflection allowed the students to think back and consider how to improve their own musical practices or the overall ensemble's musical performance. For example, one participant mentioned that if she had a question about her music playing or work, she would wake up at 3:00 a.m. and research her questions on an iPad. Another participant was thinking about how he could practice on a steelpan without having to pay a lot of money. He stated he woke up in the middle of the night and thought about making an electronic steelpan out of parts ordered on the Amazon website. A third participant mentioned she was trying to figure out how to play her steelpan while she was driving home from music class. She thought about various ideas and successfully applied those ideas at the next music class session. A final participant mentioned he gets his musical song ideas while

mowing the lawn or shoveling snow. All these examples illustrate and agree that reflection encourages adult learners to make "meaning" or make sense of an experience to interpret it. People use this interpretation to guide their decision-making and actions. After they make meaning of what they experience, this concept becomes learning. Reflection also enables individuals to correct distortions in their beliefs and errors in problem solving (Mezirow, 1990). Reflection uses reflection-on-action, which refers to looking back to what was going through the adult learners' minds during the actual practice encounter (reflection-in-action). The next time we engage in actual practice, our reflection (reflection-in-action) should draw on our previous reflection-on-action (Thompson & Thompson, 2008). These findings concur with the literature.

The participants bring their group (team) dynamics/leadership experiences to collaborative learning. For example, many participants praised the music ensemble instructor's teaching and leadership and expressed their appreciation that she was able to provide a welcoming and encouraging learning environment. One participant mentioned that the instructor never criticized or singled out individuals if they played poorly. She always taught in a positive way, and she encouraged suggestions from the class. Another participant stated that the instructor was an excellent communicator. She communicated through e-mails and made announcements at the beginning of class. She always encouraged students to ask questions, as well as encouraged students to vote on a particular song. A third participant observed that the instructor did not place pressure on the students because many were not music majors. Some students were struggling with reading the music and playing their instruments. A final participant mentioned that the instructor encouraged students to take leadership roles within the music ensemble, such as allowing a teaching assistant to lead the music ensemble or allowing a student to arrange a musical piece. All these findings agree with participatory leadership, in which all

members of a team participate in identifying goals and procedures or strategies for reaching those goals. The leader facilitates rather than issuing orders or making assignments. This process allows the development of additional leaders who can serve the organization in the future. From this perspective, a participative leadership style encourages the active involvement of everyone on the team. People are to express creativity and demonstrate abilities and talents that might otherwise not be made apparent. The discovery of these hidden talents benefits the work of the entire team (Iqbal et al., 2015). The findings also agree with team leaders having a key opportunity to change and influence the direction of the team. By providing guidance and developing skills, leaders can shape the teams' processes, behavior, and performance. They may use a number of methods, such as conducting briefings, emphasizing shared goals, and energizing and engaging team members (Reyes et al., 2019).

## Conclusions, Implications, and Recommendations

Certain music ensemble students reported they did not know how to read music, or they lacked the necessary background in musical theory to play their instruments effectively. Some students received assistance during classroom instruction, but depending on the classroom activities, it was sometimes insufficient. The implication based on this finding is that because certain students lacked an understanding of musical concepts, they can possibly encounter more difficulties later on in their learning in the music class. One recommendation is having special support (e.g., private music lessons or cooperative learning support) for students having difficulties with learning music in the classroom can possibly making the students' learning easier in the future. Another recommendation is to research possible ways to assist students, such as having more teaching assistants or knowledgeable students from the music ensemble available

to provide cooperative learning support. Perhaps there is a network of individuals that can be organized to assist students who are having difficulties with music reading.

The study also revealed that students enjoyed talking in class when asked. There were special occasions in which the instructor would ask the class for their feedback and opinions after a major ensemble performance. The conclusion based on this finding is that certain discussions are important and help bring the music ensemble students together as one unified body. The implication is that allowing students to share their individual opinions and comments may help to enhance the music ensemble's performance. One recommendation is to consider finding ways to bring students together to talk informally. Some students might not want to talk in a large group for fear of saying something that might be perceived as strange or wrong in front of others. A recommendation, therefore, is to research possible alternatives for students to voice their opinions, comments, and concerns before and after the completion of a major class event (e.g., musical performance), such as a "town hall," which could be done outside of class, such as meeting at a bar or café.  Students may be hesitant to talk or comment in front of other students, but it also may provide the opportunity to express and listen to any concerns, as well as talk and confide with other students informally.

Many participants described using collaborative learning experiences to solve certain problems both within the ensemble and outside the ensemble. Some individuals noted these collaborative learning experiences took place within their professional workplaces, during private study time, and during their own personal time. The implication is that collaborative learning can serve as a catalyst for problem solving in various settings. A recommendation is for the instructor to encourage students to work in groups inside and outside of class and to use collaborative learning to solve problems within music instrument sections or as an entire class.

Another recommendation is to research specific ways that collaborative learning can be used to solve problems, so students can apply these methods during the music classroom's instruction.

Many participants in the study expressed positive comments about the instructor's teaching and leadership qualities. They stated she created a welcoming environment for regular students and newcomers. The implication is that collaborative learning is more likely to occur if the music classroom instructor creates an environment in which the students feel respected and recognized for who they are. One recommendation is that instructors receive training in leadership styles with a focus on democratic leadership in the music ensemble. Another recommendation is to research the relationships and effects between a welcoming environment and democratic leadership, to see how these factors impact collaborative learning in the music ensemble.

In this study, certain students were given responsibilities such as arranging and creating music for the class and acting as teaching assistants. One conclusion is that the students in the class were given some responsibilities to govern themselves and other students within the classroom. An implication is that a student self-government, as an offshoot of democratic leadership, promotes collaborative learning and strengthens the music ensemble. One recommendation is that the music instructor consider allowing students more freedom to govern or empower themselves in order to take on larger projects or challenges. Another recommendation is to research the possibility of setting up a governing body (empowerment) within the music ensemble that can address the needs of certain students. There are certain regular students who come back each semester and participate in the ensemble. Perhaps some of these students can be given leadership positions, such as one individual sets up a musical tutor group, another individual arranges a musical training seminar for the entire ensemble, and a third

individual looks out for the newcomers by providing an orientation, etc. The instructor stated that she wanted everyone to work as a team and have fun together. She was sharing her leadership roles with others. Perhaps she can empower more students to take on needed tasks within the ensemble and lead students in collaborative learning projects.

## Contributions to the Literature

This study examined how the participants engaged in collaborative learning activities taking place in the music ensemble classroom, in their professional workplaces, or in other academic classrooms, but all the participants stated that overall they enjoyed the welcoming and encouraging learning environment that the music ensemble instructor provided in the classroom. Certain participants commented they lacked a strong musical background and were somewhat hesitant in reading music and playing the steelpan instruments in the musical ensemble; however, through the instructor's teaching and leadership abilities, she was able to provide a non-stress, fun atmosphere for the students to study and learn in, and this allowed the students to overcome any fears. This kind of learning environment allowed the students to freely ask questions, make suggestions, discuss issues as a whole class, and engage in collaborative learning activities with others. The participants' experiences contribute to the literature on issues, such as *creating a welcoming and encouraging environment, discussing with others,* and *taking risks and experimentation.*

### Creating a Welcoming and Encouraging Environment

As discussed, many participants mentioned the music ensemble instructor created a warm and welcoming environment for all the music ensemble students, especially those who lacked a musical background. Certain participants remarked they had difficulties in reading music and

playing their instruments, but they received support from the instructor, from the teaching assistants, and from other students. Comments about the music ensemble instructor included: "It is a welcoming environment. It is not threatening," "There is no pressure to perform at a certain level," "The instructor communicates well to the rest of the class," "The leader sets the tone of the classroom," and "If people make a suggestion, the music ensemble instructor listens." As discussed, democratic leadership, also known as participative or shared leadership, is a style where ideas from team members and peers are considered and valued. Everyone on the team is encouraged in exchanging their ideas and opinions. The democratic leader encourages the team to share ideas in the decision-making process; however, the responsibility of the final decision-making is with the leader. Researchers have discovered this leadership style is one of the most effective types which leads to high productivity (Gadirajurrett et al., 2018). The democratic manager also keeps his or her employees or team members informed about everything that affects their work and shares decision-making and problem-solving tasks. Many employees or participants enjoy the trust they receive and respond with cooperation, team spirit, and high morale (Khan et al., 2015). In applying the literature, the participants in the study were treated as team members and their suggestions and ideas were considered and valued. Everyone was encouraged to provide new ideas and suggestions. Everyone was also informed about the current and future activities of the music ensemble. Leadership was shared among other students, such as music arranging and directing the ensemble. Everyone shared in the decision-making and problem solving in the music ensemble. Overall, the participants felt they were important team members and leaders within the music ensemble.

One university marine professor and researcher made the following comments regarding creating a welcoming environment for her students:

We succeed as a team or not at all. Our professional and personal contributions to our work are based on essential principles of collaboration and mutual respect, regardless of any individual's position within our team. Everyone is here to learn, share their knowledge, and work to improve. Supporting the success and learning of everyone on the team (without compromising anyone's safety or well-being) is our priority. We commit to building a culture of constant improvement, where we aren't focused on whether someone is good at something, but whether they're trying and getting better. Mistakes are a natural and unavoidable part of learning.

We are committed to respect for others, including our research subjects. We believe that respect for people includes an interest in their professional and personal goals, a commitment to their physical and emotional well-being, a desire to build meaningful and lasting relationships and a goal of supporting students in building such relationships with each other. Respect fundamentally includes a commitment to core principles of kindness, inclusivity, and generosity. Every member of our team, students, and staff should know and feel they are valued and belong. (Macdonald, 2020)

A few participants in the study mentioned they felt humiliated by other music class instructors while attending classes. One participant stated she didn't want to attend a dictatorship-style class. She stated she was singled out and humiliated by a particular music instructor for being a non-traditional student, and she felt punished. She said that instructor made her music learning experience unpleasant. Another participant mentioned she did not want to be abused by an inconsiderate instructor. She did not want to go to class because she felt afraid the instructor would make her learning uncomfortable. Another participant said he enjoyed the current music ensemble instructor's class because even if a student did not know something, no one, including the instructor, would make him feel stupid and humiliated in front of others. Based on the university marine professor/researcher's comments, she believed everyone (i.e., students, faculty staff, etc.) is important based on the essential principles of collaboration and respect. Everyone is here to learn and share their knowledge. Respecting and building relationships with others are important to learning. Respecting others includes kindness, inclusivity, and generosity. Every team member, student, faculty member, and research subject

should know and feel they are valued and belong (Macdonald, 2020). If any leader leads by example, according to the marine university professor's beliefs, then everyone will have a productive and fun experience in learning together.

<div align="center">Discussing with Others</div>

After students feel they can function and learn in a welcomed and encouraging learning environment, discussing with others is the next important phase in group activities. Many people—especially newcomers—feel nervous, afraid, and lacking confidence when they enter a totally new learning environment for the first time. It is important that students talk and develop relationships with others. As time progresses, students start to open up and contribute to the class by asking questions, offering suggestions and opinions regarding important issues, and perhaps participating in leadership roles. That desire of wanting to participate in the classroom depends on how he or she feels comfortable among other students and the instructor. For example, one participant in the study who came back to the music ensemble every semester liked to make personal announcements (e.g., her son was graduating from college) during class. She also liked to offer suggestions, such as how to play musical scales or remember musical theory concepts. She was so relaxed and happy to be in class that she felt the students and instructor were part of her own family. She enjoyed being in class because the instructor provided a warm and caring environment.

Knowledge sharing involves providing the organization with a relaxing learning atmosphere and free movement of knowledge, resulting in enhancing the learning efficiency of the members of the organization. As a result, the organizational members' skills are continuously upgraded and ultimately the organizational learning and performance levels are improved (Rao et

al., 2018). For knowledge sharing to take place, the organizational culture requires a trusting atmosphere, so everyone feels comfortable about sharing their thoughts and ideas (Block, 2019). Researchers also studied dental students participating and learning in small discussion groups versus studying in traditional lectures. The researchers reported that small-group discussion formats were intended to foster independent thinking and problem-solving skills. The researchers discovered that active student participation was significantly related to a higher level of skill acquisition. There was a better performance in preclinical skills because students used small-group discussion methods versus traditional lectures in dental education. Facilitators of the small discussion groups realized the students were more capable, knowledgeable, and more insightful than they had expected (Arias, Scott, Peters, McClain, & Gluskin, 2016). Overall, discussion with others allows adult learners to share knowledge after they develop trust with other students and instructors. Learning, such as the fostering of independent thinking and problem-solving skills, can be enhanced in small group discussions. Discussing with others is an important attribute in collaborative learning, but it will only occur if people feel safe and comfortable enough in a positive and supportive environment to discuss any issues with other people.

## Taking Risks and Experimentation

Certain participants in the study mentioned how they took initiatives to suggest, propose, and implement new strategies to overcome problems that occurred in the music ensemble. For example, one participant mentioned she was unable to practice enough during her personal time, so she and other students proposed to meet on Friday mornings. They also had another student unlock and open the steel band classroom, so the other students could practice together. One participant took the initiative of helping another student in class with her difficulties in reading

music by discussing, creating, and developing with another student a color-coded music system. A different participant experimented with a certain percussion instrument out of curiosity, such as examining and holding three plastic bottles tied together with pellets inside them. When she shook the bottles, it produced a rhythmic sound. A final participant mentioned he was impressed and learned something new after looking at another student's sheet music. Although the student could not read music, she was able to write the names of the musical notes and beat counts with different colors on her sheet music. These activities show that certain participants were willing to take the necessary risks and experiment to solve certain problems they encountered in their music studies. They felt it was safe enough to step outside of their comfort zones and try new things.

Various literature discusses risk taking in learning environments. Wanless and Winters (2018) state that warm and authentic relationships with others, access to trusted peers to validate learning, and making mistakes without ridicule help us all learn, no matter whether we are children or adults. Cheatham (2017) mentions that risk is also important in any kind of learning activities (e.g., design). The process involves trial and error, and risks must be taken in order to innovate and refine design outcomes. To explore how to encourage risk-taking that may lead to innovative design outcomes, priority should be placed on developing new models for facilitating learning and assessing work. Carroll and Dodds (2016) also claim the teacher-student relationship is particularly important, as it can foster creative thinking in students, allowing them to take risks and develop new and original ideas. In applying the literature, various participants conducted several initiatives, such as proposing to practice their music together on Friday mornings, discussing and working with other students to create a new music color coding system for a student who cannot read music, and experimenting with a percussion instrument of students

taking risks and experimenting. Taking risks and experimenting regardless of success or failure are dependent on whether the participants feel safe in engaging those activities without feeling the fear of punishment or ridicule from others. Risks involve trial and error, and risks must be taken in order to innovate and refine design outcomes (Cheatham, 2017). Just as Carroll and Dodds (2016) state that a teacher-student relationship is important, as it can foster creative thinking in students who take risks to develop new and original ideas, the participants in the study felt they had a stable and safe relationship with the musical ensemble instructor, thus allowing them to take various initiatives to overcome and improve on any challenges they faced in the classroom. In summary, it is important that an instructor or leader provides a safe, supportive, welcoming, and encouraging environment for students to ask questions, make suggestions, and take various initiatives through risks and experimentation in order to grow and create something new and innovative.

### Implications for Adult and Higher Education Research

<u>Findings, Implications, and Recommendations #1:</u>
<u>(Participants Used Collaborative Learning to Solve Problems)</u>

One finding in the study was that certain participants in the music ensemble used collaborative learning to solve problems that arose or developed new ideas (e.g., musical arrangements) to use. For example, one participant described how she met with engineers and, through various discussions and an exchange of ideas, they created a spring-like device mounted on a handicapped child's head, which allowed him to hit the drum by moving his head back and forth in front of it.  Another participant discussed how she and other students exchanged ideas with each other and created a color-coding music system that allowed a student to read her music and play her musical instrument despite her lack of a musical background. A final participant

mentioned that she worked and discussed with a Thai musician to create a musical arrangement incorporating Thai traditional and Calypso music. Blum et al. (2017) stated that collaborative learning is where two or more people learn something together, such as capitalizing on one another's resources and asking one another for information. Collaboration and the sharing of information can make learning more efficient. Fedorinova et al. (2018) also asserted that the collaboration learning process contributes to creative thinking by various interactions. Participants share information on new ideas. Students also plan their work, organize discussions, and make decisions. The students provide feedback and reflection on their work. Pun (2012) also researched collaborative learning and creativity in students assigned to work in small groups within a community of learners. Nearly all of them shared ideas, did things together, and helped one another for the benefit of the group. In applying the literature, the participants in all the examples met with other individuals, asked one another for information, shared information on new ideas, and provided feedback and reflection, all of which these activities contributed to their creative thinking and work.

One implication is that students will use collaborative learning to solve problems and develop new product ideas not only in the classroom, but in the workplace. Students will graduate from their universities, and they will enter the workforce. They will use collaborative learning in their workplaces, and also, perhaps in their families as well.

Certain companies use and support collaborative learning. For example, one company hosts "creative jams," in which it uses expert speakers and team competitions to create a community platform for learning where web designers of different backgrounds and talent levels are forced to work together. Everyone learns from each other as they adapt new tools and processes. Web designers are hungry to learn and experiment and try to push the boundaries and

innovate. They also participate in collaborative learning with other designers and professionals to ensure the creation of a strong web design product. Such activities include industry research, customer insights, and general design preferences (Christopher, 2018). Another example is an architecture firm that holds daily meetings to maintain connections between team members, identify technical issues, and plan the day's work. Architects also use whiteboards or sticky notes in brainstorming sessions. They also upload hand drawings and sketches using apps like Genius Scan to share design concepts and use sketching apps to create and share drawings with other architects (Tenney, 2020). In a final example, one company hosts meetings called "Lunch & Learn," in which teams are brought together to participate in collaborative learning. Experts in various fields are brought in to talk about their specialties. Employees are able to ask questions, bond together, and leave with new skills and ideas (Tigar, 2020). Overall, collaborative learning in companies also fosters better employee relationships, as it encourages teams to communicate and problem-solve together and see team members as valuable resources (BasuMallick, 2019).

One recommendation is to research how future college graduates will use collaborative learning in the workplace. These college graduates will also work at their workplaces and return to universities for higher learning. Researching and understanding how college graduates will use collaborative learning in their workplaces will provide adult and higher education educators the necessary information to prepare and institute needed changes in universities' adult and higher education programs. Workers are also using various mobile technologies, such as Zoom, Instagram, and What's App to communicate with each other. It is also necessary to research and understand how workers are using these technologies in their collaborative learning settings.

Findings, Implications, and Recommendations #2:
(Participants Used the Internet as a Major Source for Their Informal Learning)

Another finding in the study is that certain participants used the Internet as a major source for their informal learning. One participant stated that she can quickly access information (e.g., drumming techniques) by watching videos on YouTube rather than taking a formal university class. Many participants mentioned they watched videos on YouTube to learn steelpan techniques from other steel bands. Another participant mentioned he listened to various kinds of music, such as Japanese, Chinese, and jazz via YouTube and other Internet websites to gain inspiration in creating musical compositions. Dierking and Falk (2003) state that informal learning is "free choice learning" or learning that is guided by the learner's needs and interests. It is intrinsically motivated and largely under the choice and control of the learner. Examples include surfing the Internet, participating in book discussion groups, watching nature documentaries on television, checking out books at the library, and visiting museums and parks with friends and family. Greenhow and Lewin (2016) discovered that students used social media through mobile devices for: (1) managing group work (finding partners, forming groups, sharing tasks); (2) generating ideas; (3) communicating with peers and teachers (group discussion, asking questions, receiving feedback); (4) documenting and communicating progress; (5) sharing project outcomes, such as presentations; and (6) sharing information, resources, and links.

One implication is that university students and graduates rely on the Internet as a major source of informal learning. University graduates will need to use the Internet for research and communication with work colleagues. One sociologist remarked that people live in a digital culture, or a culture that embraces technological innovation and advances that facilitate the use of digital tools for improving business and enhancing efficiency. The majority of individuals

sleep with their cell phones in reach, and more than half check them in the middle of the night.

Internet access is considered a utility rather than a luxury, much like electricity and water.

According to the website MerchDope, 300 hours of video are uploaded to YouTube every

minute, and almost 5 billion videos are watched every day. More than half of those views come

from mobile devices (Clark, 2020).  In another example, an executive assistant uses text, phone,

email, Instagram, FaceTime, Google Meetout/Hangout, Zoom, WhatsApp, Marco Polo, and

HouseParty to communicate with her work colleagues while working at home remotely (Afshar,

2020). Employees are also learning virtually face to face by using technologies such as Zoom

live audio-visual discussions and Microsoft Teams sessions (Chowdhury, 2020).

One recommendation is to research and understand how college students and college

graduates will use technology for their informal learning. This research will open many

opportunities for students and educators to participate in online learning. Using Zoom and

Microsoft Teams allows instructors to have face-to-face meetings with students regardless of

distance. It will allow students to take live classes at home, at their workplaces, or at coffee

houses. Adult learners use technology to make their lives easier and more convenient. If

educators can understand how students use technology, they can institute the necessary reforms

and changes in adult and higher education curricula to make student learning more accessible.

<u>Findings, Implications, and Recommendations #3:</u>
<u>(Participants Helped Others Through Cooperative Learning)</u>

A final finding in the study is that all the participants helped others through cooperative

learning. Some students, especially those who lacked a musical background, had a difficult time

understanding musical concepts or playing the steel pans. One participant who was a teaching

assistant offered help to students in the musical ensemble who didn't understand how to play

their instruments. Other participants met on Fridays in the steel band practice room to practice their music with the steel pans. Another participant would ask questions to his fellow instrument section member if he got lost while playing his music. One participant mentioned that she took music theory lessons from a graduate student. A final participant mentioned she also took music lessons from undergraduate students, graduate students, and from a teaching assistant. Johnson and Johnson (1999) state that cooperative learning involves students discussing material with each other, helping one another understand, and encouraging each other to work hard. Raja et al. (2017) state that cooperative learning is a highly socialized, interactive, and modern kind of communication that involves individual students participating in small groups or pairs to exchange their understanding, knowledge, and expertise during classroom activities. In all the examples, the participants in the study were helping others to understand difficult musical concepts and instrument playing techniques. Without cooperative learning, many students could give up and not attain their learning objectives.

One implication is that college graduates will use cooperative learning in their workplaces. Workers will have to learn new concepts when working in teams and using collaborative learning. Sometimes they need help from their colleagues to understand new concepts. Peer learning, a form of cooperative learning, is when two or more colleagues learn together. Peer learning allows colleagues to request or share knowledge. Examples include peer coding reviews on engineering teams or sales call reviews on sales teams (Chan, 2020). Another example is where companies use learning programs, such as in-person workshops, seminars, face-to face-learning, and e-learning for their employees to build important skills and develop professionally (Arruda, 2020). Workers also learn skills through videos, online courses, articles, TED Talks, or access to peers who have expertise in a subject (Palmer & Hurst, 2020). Finally,

peer-to-peer coaching creates a learning culture in the workplace by pairing a senior team member and a junior team member to work on a particular project together (Balkhi, 2020).

One recommendation is that researchers focus on college graduates engaging in cooperative learning in the workplace. How do they use video apps to interact with their colleagues? How do they use peer learning through video apps? How do they interact with other colleagues if they work remotely? Due to the Coronavirus 19 pandemic, many businesses have allowed employees to work remotely from home. Businesses are using collaborative technology apps like Slack, Zoom, and Google Suites for their remote work force (Welson-Rossman, 2020). The information obtained in this research will help adult and education educators understand how to reform and institute changes in university curricula.

## Recommendations for Future Research

Discussion is the first important step in the collaborative learning process. Many participants explained how they started the collaborative learning process by engaging in discussion with others. Participants explained they identified a problem that one or many students might have, such as not being able to read the music well enough to play their instruments, or how to practice with the steelpan instruments when they do not have access to them outside of class (i.e., one participant decided to create an electronic steelpan). The literature stated that collaborative learning is where two or more people learn something together, such as capitalizing on one another's resources and asking one another for information (Blum et al., 2017).  But the literature provided little explanation about how discussions develops in the collaborative learning process. Various questions for investigation include: (1) What kinds of questions are asked within a discussion that leads to collaborative learning? (2) How does the

discussion flow from ideas to prototype stage? and (3) What are the types of arguments,

opinions, and dialogues that take place within the discussion? Further research might help to

better understand how discussions initiate the collaborative learning process.

Taking risks and experimentation are the next steps in collaborative learning. After

someone raises a common problem with others, a discussion starts to develop, and people start to

exchange ideas. Participants in the study explained how they engaged in collaborative learning,

such as creating a color coded music system, writing notes in a steel pan for someone who had

trouble reading music, and creating a spring-like device attached to a handicapped child's head

so he could hit a drum. The literature discussed various segments of collaborative learning

theories, such as experiential learning, social constructivism, and problem-based learning.

Further research is needed to examine how adult learners take risks and experiment with new

ideas after they engage in many discussions. Many individuals hesitate to take risks due to fear

of failure. For example, some private startups use collaborative learning to create innovative

solutions, such as new digital products (e.g., smartphones and laptops), and there is a huge

amount of uncertainty involved. No one involved in a collaborative learning project can predict

the future outcome or result, but taking risks and experimenting with possible prototypes is a

fundamental step in trying to limit and reduce the amount of uncertainty involved.

Participants discussed their experiences with reflection, which is another important

process in the collaborative learning process. Reflection means some phenomenon is subjected to

thorough consideration and that one's thought dwells for a longer period of time on an object to

obtain a better and deeper understanding of it (Bengtsson, 1995).  To make "meaning" means to

make sense of an experience and individuals make an interpretation of it. People use this

interpretation to guide their decision-making or actions (Mezirow, 1990). Reflection allows adult

learners to go over past actions or processes and find ways to improve them (e.g., practicing and mastering music, refining a musical arrangement, etc.). The participants mentioned various ways they reflected or pondered on issues related to their music playing in the music ensemble. Some comments included (1) waiting until the next day for a solution to appear; (2) ideas emerged when it was quiet; (3) ideas and solutions to problems occurred while one was sleeping (i.e., a few participants woke up during the middle of the night); and (4) ideas occurred while one was driving their car. The literature discussed the various learning theories of reflection, but it did not describe any kinds of reflection techniques or similar examples that were suggested by the participants. Researching on various reflection techniques would help adult learners to refine and improve new products and come up with innovative solutions to problems.

Collaborative learning has other benefits besides providing creative and innovative solutions to problems. One participant mentioned that while she was employed as a social worker, she tried to have rival youth gangs come together and play baseball. Collaborative learning allowed the gang members to assume more responsibility by participating in group decision making. Certain processes, such as consensus, idea negotiation, and give and take also occurred during the collaborative learning process. In this study, it was revealed that if the gang members were given more responsibility in completing tasks, as well as including their opinions and ideas in the group decision-making process, many gang members continued to attend the meetings. They all wanted to be a shareholder in the outcome. However, the literature provides little information about how collaborative learning affects the participation of shareholders. Further research could help identify the additional related benefits and outcomes of collaborative learning and thus would contribute to the field of adult and higher education.

Researcher's Reflections

In this study, I examined how participants practiced in a music ensemble and engaged in

collaborative learning with their musical instruction. In addition to collaborative learning

theories, the study incorporated other adult learning theories, such as informal learning,

cooperative learning, reflection, and group (team) dynamics and democratic leadership. The

findings of the study help illustrate how collaborative learning and other adult learning theories

(e.g., informal learning, cooperative learning, etc.) are used to create innovative solutions (See
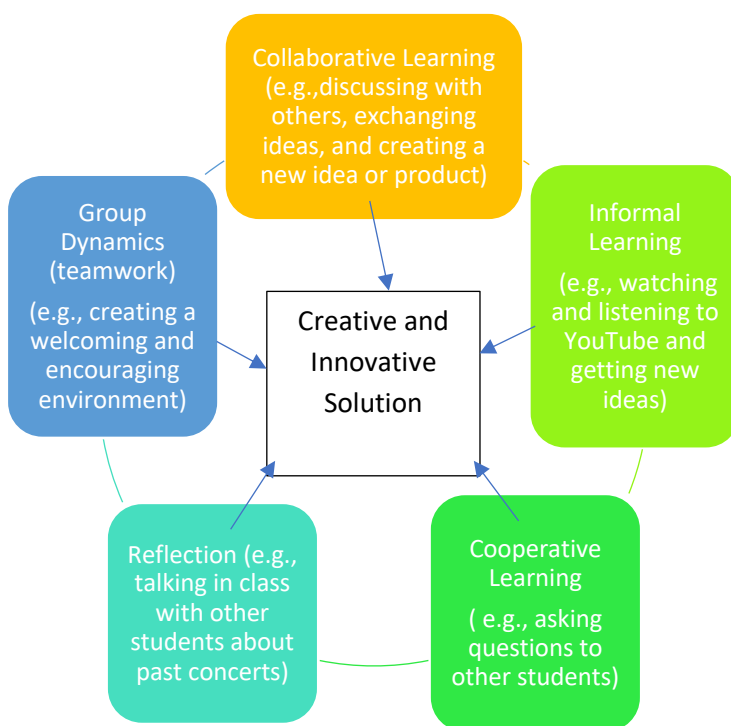
Figure 3).



Figure 3. Collaborative learning model for creative and innovative solutions.

The *collaborative learning model for creative and innovative solutions* (Figure 3) is a

graphic example of how students and designers can develop innovative solutions for various

applications. The model illustrates how, by having team members actively engaged in informal learning, cooperative learning, reflection, group (team) dynamics, and democratic leadership, these interactive activities lead them to the focal point of the collaborative learning process: a creative and innovative solution. It is my hope that this study serves as a model for other scholars and encourages them to pursue further research in collaborative learning.

## Chapter Summary

### Research Question #1: According to the participants, what are the benefits of collaborative learning?

Two themes emerged as the participants described their experiences regarding the benefits of collaborative learning: (1) collaborative learning solves new problems, and (2) collaborative learning develops new ideas. The theme, *collaborative learning solves new problems,* described the participants' collaborative learning experiences of solving common problems by discussing with others, exchanging ideas, and then arriving at solutions by mutual consensus. The theme, *collaborative learning develops new ideas*, described the participants' collaborative learning experiences as meeting other students, discussing and exchanging new ideas, and creating a new idea as the final product through consensus.

### Research Question #2: How does collaborative learning contribute to adult learners' experiences in the classroom?

There are various answers that allow collaborative learning to contribute to adult learners' experiences in the classroom. Collaborative learning allows for creativity and critical thinking. It also allows adult learners to express their thoughts and opinions in a group or community setting, which is very important to adult learners. Collaborative learning promotes

growth and change; it allows for adult learners to look at new perspectives and ideas during discussions. Collaborative learning suggests a way of respecting other individuals' opinions and ideas and recognizes them as active participants in a group. It allows knowledge sharing to take place within a group. Collaborative learning also allows for problem-based learning.

<u>Research Question #3: What significant knowledge and experiences do<br>adult learners bring to collaborative learning?</u>

The participants in the study bring their informal learning experiences to collaborative learning. They also bring their work and life experiences to collaborative learning. The participants bring their cooperative learning experiences to collaborative learning. They bring their reflective learning experiences to collaborative learning. Finally, the participants bring their group (team) dynamics/leadership experiences to collaborative learning.

## Conclusions, Implications, and Recommendations

Certain music ensemble students reported they did not know how to read music, or they lacked the necessary background in musical theory to play their instruments effectively. The implication based on this finding is that because certain students lacked an understanding of musical concepts, they could possibly encounter more difficulties later on in the music class. One recommendation is to make special support (e.g., private music lessons or cooperative learning support) available for students having difficulties with learning music in the classroom. Another recommendation is to research possible ways to assist students, such as having more teaching assistants or knowledgeable students from the music ensemble available to provide cooperative learning support.

In the study, I also discovered that students enjoyed talking in class when asked. The conclusion based on this finding is that certain discussions are important and help bring the music ensemble students together as one unified body. The implication is that allowing students to share their individual opinions and comments may help to enhance the music ensemble's performance. One recommendation is to consider finding ways to bring students together to talk informally. Some students might not want to talk in a large group for fear of saying something that might be perceived as strange or wrong in front of others. A recommendation, therefore, is to research alternative settings where students can feel comfortable voicing their opinions, comments, and concerns before and after the completion of a major class event (e.g., musical performance), such as a "town hall," which could be done outside of class, such as meeting at a bar or café.

Many participants described using collaborative learning experiences to solve certain problems both within and outside the ensemble. The implication is that collaborative learning can serve as a catalyst for problem solving in various settings. A recommendation is for the instructor to encourage students to work in groups inside and outside of class and to use collaborative learning to solve problems within music instrument sections or as an entire class.

Many participants in the study expressed positive comments about the instructor's teaching and leadership qualities. The implication is that collaborative learning is more likely to occur if the music classroom instructor creates an environment in which the students feel respected and recognized for who they are. One recommendation is that instructors receive training in leadership styles with a focus on democratic leadership in the music ensemble.

Contributions to the Literature

In this study, I examined how the participants engaged in collaborative learning activities taking place in the music ensemble classroom, in their professional workplaces, or in other academic classrooms, but all the participants overall stated they enjoyed the welcoming and encouraging learning environment that the music ensemble instructor provided in her music ensemble classroom. The participants' experiences contribute to the literature on issues, such as creating a welcoming and encouraging environment, discussing problems with others, and taking risks and experimentation.

## Implications for Adult and Higher Education Research

Three findings for adult and higher education research were provided: (1) participants used collaborative learning to solve problems; (2) participants used the Internet as a major source for their informal learning; and (3) participants helped others through cooperative learning. Various implications and recommendations were discussed for adult and higher education research for each finding listed.

## Recommendations for Future Research

Discussion is the first important step in the collaborative learning process. The literature I reviewed provided few insights into how discussions develop in the collaborative learning process. Further research might help us understand how discussions initiate this process.

Taking risks and experimentation are the initial steps in collaborative learning. After someone describes a common problem to others, a discussion starts to develop, and people start to exchange ideas. The literature discussed various segments of collaborative learning theories,

such as experiential learning, social constructivism, and problem-based learning. Further research is needed to examine how adult learners take risks and experiment with new ideas after they engage in many discussions.

Participants discussed their experiences with reflection, which is another important process in the collaborative learning process. Authors in the literature review described the various learning theories underlying reflection, but they did not discuss any kinds of reflection techniques or similar examples that were suggested by the participants. Further research on various reflection techniques will help adult learners to refine and improve new products and discover innovative solutions for problems.

Collaborative learning has other benefits besides motivating learners to come up with creative and innovative solutions to problems. Authors in the literature talk little about how collaborative learning affects the shareholders' participation. Further research can help identify the additional benefits and outcomes of collaborative learning and thus may contribute to the field of adult and higher education.

<p style="text-align:center">Researcher's Comments</p>

The collaborative learning model for creative and innovative solutions is an example of how students and designers can use this model to develop and create innovative solutions. By having team members actively engaged in informal learning, cooperative learning, reflection, group (team) dynamics, and democratic leadership, engaging in the collaborative learning process may lead learners to produce unique solutions for various applications.

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APPENDIX A

CONSENT FORM

Consent Form (Adult (18 or older) for Audio/Video Recording

Dennis Awen, Doctoral Student
Adult and Higher Education,
College of Education
Northern Illinois University
DeKalb, Illinois

I, _____, (Name of Participant in Research Study)

agree to participate in the research project titled, *How Adult Learners Innovate in a University Environment*, being conducted by Dennis Awen, a doctoral student in the Adult and Higher Education department at Northern Illinois University, Dekalb, Illinois, USA. I have been informed that the purpose of the study is to research the methods of innovation by Northern Illinois University adult learners (i.e., undergraduate, graduate, faculty, staff, employees, etc.)

Statement of Consent to be Photographed [and/or audiotaped, videotaped, etc., if applicable]:

   [Examples:]

   I understand that photographs (audio/video recordings) may be taken during the study.

   I consent to having my photograph taken. (being audio/video recorded)

   I consent to use of my photograph (audio/video) in presentations related to this study.

   I understand that if photographs (audio/video recordings) are used for presentations of any kind, names or other identifying information will not be associated with them.

   All personal information regarding the participant will be kept confidential and anonymous.

_____

Signature of Participant/Date

APPENDIX B

INTRODUCTION TO MY DOCTORAL DISSERTATION RESEARCH

Introduction to My Doctoral Dissertation Research

(How Adult Learners Innovate in a University Environment)

## Who Am I?

My name is Dennis Awen. I am a doctoral student in the Adult and Higher education department of Northern Illinois University, DeKalb, IL. I am currently conducting my doctoral dissertation research on how adult learners within a university environment engage in innovation (i.e., collaboration, idea exchange), in which the end result is that the participant or participants develop a new product, new service, new idea, or even new knowledge. I find this process to be quite fascinating. I believe this research will contribute to the current academic knowledge in adult learners and innovation.

## Why Is This Research Important?

This study is significant because society currently places a high priority on creative, innovative, and entrepreneurial thinking and abilities. The ability to produce and implement new and useful ideas is rapidly becoming an important attribute for leveraging knowledge and increasing the quality of life. Innovation is used to create works of art, to discover ways to provide inexpensive and abundant sources of energy, develop noninvasive surgical devices, and other new inventions. Over the past 50 years, creativity, innovation, and entrepreneurship have produced solutions based on interdisciplinary thinking that are being used to solve societal problems such as AIDS, hunger, and environmental challenges.

## What Is My Objective?

I will be conducting a qualitative research study in which I will participate in the activities of a team or group engaging in the innovation process. During that time, I will be observing, taking notes, recording interactions of participants via a digital recorder, and conducting structured and semi-structured interviews with participants for my research study.

## Interview Process

I will ask certain participants to participate in structured and semi-structured interviews. The data I collect during the interviews will be recorded on a digital recorder. All data will be stored in a filing cabinet and the identities of the participants will be kept strictly confidential. If you are interested in participating in my interviews, you will be asked a series of questions. Your answers will be used in my research. You may refuse to participate in the interview at any time. All participants in the interview will receive some kind of gift compensation for their participation.

## Final Comments

If you have any questions, please contact me at my e-mail address: z1651850@ students.niu.edu. My dissertation chairperson is Dr. Laverne Gyant, Department of Adult and Higher Education, Northern Illinois University, DeKalb, Illinois (e-mail: lgyant@niu.edu). Thank you for your participation in my dissertation research.

Dennis K. Awen

Doctoral Student, Adult and Higher Education, Northern Illinois University, DeKalb, IL

APPENDIX C

INTERVIEW CONSENT FORM

Interview Consent Form (Adult 18 or older)

Adult and Higher Education
College of Education
Northern Illinois University
DeKalb, Illinois, USA

I,_____, (Name of Participant) agree to participate in the research project titled *How Adult Learners Innovate in a University Environment*, being conducted by Dennis Awen, a doctoral student in the Adult and Higher Education Department at Northern Illinois University (Dissertation Chairperson, Dr. Laverne Gyant, e-mail: lgyant@niu.edu). I have been informed that the purpose of the study is to research the methods of innovation by Northern Illinois University students.

I understand that if I agree to participate in this study, I will be asked to do the following:

- Answer questions regarding innovation, innovative methods, and other related questions.

- Describe, and explain innovation and its processes of adult learners within a university environment.

I am aware that my participation is voluntary and may be withdrawn at any time without penalty or prejudice, and that if I have any additional questions concerning this study, I may contact Dennis Awen, 1-847-708-9038, z1651850@students.niu.edu (Dissertation Chairperson, Dr. Laverne Gyant, e-mail: lgyant@niu.edu). I understand that if I wish further information regarding my rights as a research subject, I may contact the Office of Research Compliance at Northern Illinois University at (815) 753-8588.

I understand that the intended benefits of this study include providing new knowledge on the subject of innovation and university learning communities.

I have been informed of potential risks and/or discomforts I could experience during this study. (No unforseeable risks).

I understand that the interview will be recorded on an audio digital recorder.

I understand that all information (e.g., consent forms and digital data) gathered during this experiment will be kept confidential by being secured in a safe location, such as within a

locked filing cabinet.  All digital data (audio, visual, and computer) will also be kept on a USB memory device and locked within a filing cabinet.

I realize that Northern Illinois University policy does not provide for compensation for, nor does the University carry insurance to cover injury or illness incurred as a result of participation in University-sponsored research projects.

I understand that my consent to participate in this project does not constitute a waiver of any legal rights or redress I might have as a result of my participation, and I acknowledge that I have received a copy of this consent form.

_____

Signature of Participant/Date

APPENDIX D

THEMES TABLE

Themes Table

*Theme 1: Collaborative Learning*

Primary Node

1. Bouncing new ideas off others.

2. Understanding how others want to play a certain rhythm and introducing new ideas within a jazz ensemble.

3. Collaborating with other nurses to create better patient-care systems and continuing education for nursing staff.

4. Helping another music ensemble member by collaborating with others and creating a way for that music ensemble member to read their sheet music and play his or her instrument more effectively.

5. Allowing students to sort and "hash out" ideas within a group.

6. Allowing students to collaborate and create music from different cultures.

7. Bringing rival gangs together to play baseball together.

8. Gathering in small groups and participating in problem-solving meetings.

9. Collaborating with an engineering student to build a drum to enable a handicapped child to participate in a band.

10. University music majors getting together after class and "jamming" on their musical instruments to create a new kind of music.

*Theme 2: Informal Learning*

Primary Node

1. Learning new things through discussion.

2. Talking after class in the hallway and exchanging ideas.

3. Having a pre-performance discussion backstage and sharing insights.

4. Sitting in a car, listening to the radio, and writing ideas down in different sections of a binder.

5. Attending concerts to give university music students new ideas for future projects.

6. Listening to various kinds of music from different cultures, such as African, Indian, Chinese, Japanese, or Western music, to increase one's musical resource background.

7. University performance major took various music classes at her local university and exposed herself to many different kinds of music, such as Soca, calypso, reggae, and jazz.

8. Meeting others in a community group (e.g., nature group) or class (e.g., music class) to learn new ideas from others.

9. Attending an academic conference and talking with others about common problems to get new ideas.

10. Listening to different kinds of music, such as fusion jazz, straight jazz, soca, calypso, or reggae.

11. Learning more about different types of music, such as classical piano music, jazz, and Latin music.

12. Working in a medical clinic and listening to physicians' presentation of monthly cases.

13. Asking other instrument section members questions and learning new things, such as downloading an instrument app to practice with.

14. Reading self-help books and working with a new kind of musical composition software.

15. Traveling to foreign countries, learning new ideas from people who live there, and trying to apply them in your own community.

16. Talking with others before and after class.

17. Looking at, exploring, and experimenting with new musical instruments within the classroom.

*Theme 3: Cooperative Learning*

Primary Node

1. Having teaching assistants help the music ensemble members during practice times, such as showing them how to hold their sticks or answering questions.

2. Asking questions to other students about musical notes, rhythms, etc.

3. Following other students when playing a musical instrument, especially when they lose their place when playing.

4. Directing questions to other students when the instructor is unavailable.

5. Members of the same instrument section helping another member learn musical notes by writing the names of the musical notes on the musical instrument.

6. Teaching assistant plays along with other music ensemble members.

7. Professor uses a board game for students to play in order to study for an exam.

8. One bass player teaching music theory and instrument playing to another bass player.

9. Gaining an understanding while practicing in a jazz ensemble.

10. Teaching assistant leading the music ensemble on a particular music piece.

*Theme 4: Reflection*

Primary Node

1. One needs to think about how to change the practice sessions to make the performance work more effectively.

2. Reflection is more like thinking about what happened, what you did already, and where you want to go with it.

3. If you quiet your brain, you can actually tap into that.

4. The music instructor asked the class for feedback.

5. You can learn by asking a question.

6. If I read, and then I consume it myself, I think, I get different and better ideas from it.

7. I was trying to figure out how can I make this kind of look like a steel pan, so that the notes would be in the right place.

8. I asked that question. Sometimes, I'll stop and say, "Is this supposed to be fast, slow, or what?"

9. I think we need more lectures for our nature class.

10. We make mistakes during a performance or practice, and then we clap out the rhythm to get it right the next time.

11. You will get your solution if you just think about it and let it simmer.

*Theme 5: Group (Team) Dynamics*

Primary Node

1. The music ensemble instructor (MEI) listened and implemented other people's suggestions.

2. The MEI was patient and nonjudgmental.

3. The MEI was able to get participants to play their musical instruments despite any initial uncomfortable feelings (e.g., nervousness).

4. The MEI knew how to help persons who were not familiar with the instrument or did not read music well enough.

5. The MEI knew how to manage with different personalities.

6. The MEI was highly organized.

7. The MEI gave hints, such as, "Try to do it this way" and gave people opportunities to repeat and perform composition measures until they were done correctly.

8. The MEI was upbeat.

9. The MEI was quite knowledgeable.

10. The MEI set the tone of the class, and said it was ok to make a mistake.

11. The MEI wanted people to feel good about making music together.

12. The MEI allows the class to vote on a musical piece, and it allows everyone to become a shareholder.

13. The MEI created a welcoming environment.

14. The MEI made everyone feel comfortable.

15. The MEI delegated authority to the teaching assistants and to other student musical arrangers.

16. The MEI likes teamwork, and an environment where everyone can contribute their own ideas.

APPENDIX E

DISSERTATION MEMO

Introduction

The purpose of this discussion is to explore how members of a music ensemble

collaborate or exchange ideas in or outside the classroom. The members also collaborate in their

professional work, in their family life, or in the community. I will look at collected research data

to help support my findings.

Music Ensemble Members Collaborating With Each Other
and Others Outside the Classroom

Collaborating and exchanging ideas are the foundations of innovation. These methods are

needed to improve and enhance services, products, and new projects. Collaborating is the basis

of creating something new.

After I imported various data, such as observation fieldnotes and interviews, into my

NVivo12 qualitative research software program, I organized my data into "nodes" or categories.

One of the nodes in my data is called "collaborating with others," which describes music

ensemble members collaborating or exchanging ideas with other ensemble members or other

individuals outside the classroom, such as work colleagues, friends, or family members.

Betty, a retired advanced nurse practitioner and fellow music ensemble member,

explained in her interview how she collaborated with other nursing colleagues after work over a

beer. Through this collaboration, she and her fellow workers created a new idea for their

workplace:

> So, by this time, there were about five of us ... advanced practice nurses who were
> working for various specialty private groups, and we put our heads together and decided
> that we would do continuing education or case presentation for the nursing staff.
> So, similar to what was presented for physicians, but really more specific for the nursing
> staff because a lot of our patients incorporated not only cardiology, but nephrology
> service, pulmonology service, hematology service because of the complex nature of their

diseases. So, we would, I mean, it was a collaborative idea that was developed over beer, after work, and it worked quite well for quite a while. So, we would pick a case that we had all been involved in and presented with, of course without names or anything, but we then talked about how each of us in our respective specialty areas collaborated ... for the better care of that patient, which we did all the time, and we did it without consciously thinking about it, but once you sit down and you really looked at it, we really did a lot of collaboration.

As discussed in the interview, this time was quite significant for Betty to discuss new ideas with her work colleagues over a beer. Having a beer after work allows an individual to reflect on the events of the day, the previous week, and previous months. I believe that people need time to reflect on past events and allow themselves to think about finding better ways to improve the current work system or methods. In this case, Betty discussed how each nurse in his or her respective specialty areas collaborated for the better care of that patient, as well as continuing education for the nursing staff. The overall objective of Betty and her colleagues was to improve the current work system and methods.

Kerry, the musical ensemble instructor, also discussed her personal work involving collaboration. She collaborated with an individual of a different nationality who played an ethnic musical instrument (Southeast Asian Studies) to create a new kind of innovative musical composition:

> The one I remember clearly right now is ... I ... collaborated with, I guess it was ... Southeast Asian Studies. And I collaborated with a gentleman called [gentleman's name]. What we did was ... we collaborated with him. So, he would perform on traditional instruments and a small steel band would play together, and I arranged the traditional music. And we will play it in a traditional manner. And we will play it in Calypso which is the music from Trinidad and Tobago and then I would ... mix them together. So that is one of the collaborations that I've done, like fusion of a South Asian instrument and steel pans.

Collaborating also involves understanding other members in a group, such as a jazz trio. Instrumentalists playing a musical piece together need to collaborate in order to perform

effectively. Discussion and exchanging ideas are important for the group to maintain while

playing their respective instruments. John, a fellow music ensemble member, discussed how he

coordinated with others in his jazz ensemble in order to understand each other while playing

together:

> I work with the trio [jazz trio], and I already know ... the instrumentalist who's a vocalist, but then there's a piano player that also uses his left hand as a bass, you know. So, he does a "walk and wind" while he still plays the piano. So, when I talk to those two, it's only if I'm like, "Okay, where are we?" You know, I ... sometimes I'll stop and say, "Okay, what are we on the same page as far as tempo?" And, you know, just little things like that. Sometimes I'll stop and ask, "Is this supposed to be fast, slow or what?" And then my friend will play up something ... like, "This is how it should be played." "Okay, got ya." And if it's like Duke Ellington, you use a swing, so, I already know what to do with that.

As discussed in this interview, collaborating allows members of a group to understand

each other. An individual can gain an understanding of how others want a particular music piece

played, whether slow or fast. In any group, such as a musical group or a business or engineering

team, there must be discussion and collaboration of ideas if a particular method or practice

doesn't work or meet the goals of the group. Collaboration helps the group find better ways and

improvements for the current work situation.

Collaboration allows others to be owners or shareholders of a group decision. Jackie, a

fellow music ensemble member, discussed how she liked the collaboration of a group because

her participation in a group decision-making allowed her to feel like she was an owner or

shareholder:

> She [music ensemble instructor] and when she had us ... like, vote for a song, were you here when she did that? We did that to get the choice of song. That was a good thing because you don't want to just to assign things, you know, you want to have some part in it, you know, at least a vote ... to put the songs nicely. There is participation. It makes me a shareholder.

In addition to exchanging ideas and promoting understanding, collaboration allows for members of a group to seek ownership through participation in a group decision. An individual who feels ownership senses responsibility and a commitment to work for the group as opposed to having someone making sole decisions for the group. Having one's voice heard within a group provides a control of one's destiny. The more individuals are allowed to voice their opinions and contribute to the overall activities of the group, the more those individuals will feel they can contribute to the group's destiny, as well as to their own destiny.

The previous examples illustrate the outcomes of individuals collaborating with each other. Each outcome is slightly different, but the overall objective is the same. Individuals gain benefits from working with others because they can obtain new ideas, gain an understanding of other group members, and sense a feeling of ownership when participating in group decision-making. An individual working alone does not have that luxury or benefit.

Discussion

Collaboration and Knowledge-Sharing

The activities of collaboration and knowledge-sharing lead to the exchange of information between more than one person. Collaboration in academic settings refers to the connection with assignments, discussions or joint activities of learning, and the related works of a student. Knowledge-sharing refers to the sharing of knowledge between individuals, members of a team, or an organization (Das & Mahapatra, 2018).

Knowledge-sharing is the core of a larger system of managing knowledge, especially within an organization. Organizations are required to learn continuously and reinvent their processes and products (Ackerman, 2002). Employees' individual skills and their ability to share

and generate knowledge within their communities and social networks play a vital role in the success of their organizations (Conrad et al., 2019).

Knowledge-sharing increases the competitiveness of organizations. Managing knowledge (Fileri, 2010) for improving the efficiency and effectiveness of processes and for accelerating innovations is a major source of an organization's sustained competitive advantage. Organizations (Dixon, 2000) interested in developing knowledge-sharing must create communication systems and information networks to increase the flow of vital information (Conrad et al., 2019).

<p align="center">Knowledge-Sharing and Innovation</p>

Creativity is the generation of new, useful ideas or solutions to problems. On the other hand, innovation is the actual implementation and execution of those creative ideas. Innovation begins with the recognition and generation of new ideas or solutions that challenged past practices and standard operating procedures (Kremer et al., 2019).

One factor that leads to creativity and innovation is knowledge-sharing, which is the means by which employees get the most out of the accumulated knowledge of the organization. Accumulated knowledge contributes to creativity and innovation, and involves organizational culture and identity, routines, systems, policies, and other employees. Through accumulated knowledge, knowledge-sharing is positively related to ideas on, for example, how to reduce production costs and improve firm performance (Kremer et al., 2019).

The success of an enterprise depends on its innovations and adoption of new technologies, which have influences on the dynamics of their external environment and competition. Knowledge is considered both a resource and a capability. For enterprises,

effectively managing and maximizing their use of knowledge is critical to the firm's competitive advantage. Knowledge management also creates platforms and processes for the creation, sharing, and utilization of tacit knowledge in organizations, as well as benefitting the innovation process. Only when externally shared, integrated, and utilized can the acquired knowledge can be successfully transformed into new products, technologies, and services to meet the needs of customers (Li et al., 2019).

## Conclusion

There are benefits for the members of a team, such as music ensembles, if they collaborate and share knowledge with others inside and outside the classroom. Exchanging new ideas, gaining an understanding, and sharing ownership of a group decision are also significant reasons to collaborate and share knowledge. Organizations that promote knowledge sharing among their employees increase the competitiveness of the organization. Doing so also promotes the creativity and innovation of the organization and, in turn, meets the needs of the customers.

Collaboration and knowledge-sharing are needed in innovation. Working in a group allows individuals to gain ideas and meets their social needs from others. Many designers (e.g., art, engineering, music, etc.) work alone, but if they can find a group or online community to work with, they will open themselves to many new kinds of opportunities and ideas.

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APPENDIX F:

INTERVIEW QUESTIONS

Interview Questions

1) What kinds of collaborative learning (e.g., discussion of ideas, constructing new knowledge, etc.) have you participated in when working in a group, such as the steel band music ensemble?

2) Please explain what activities (i.e., examples) occurred during the collaborative learning.

3) What kinds of informal learning (e.g., reading books outside of class, surfing the Internet, talking with other students about the music class) have you participated in that relates to the steel band music ensemble?

4) Please explain what activities (i.e., examples) occurred during the informal learning.

5) How did the informal learning influence your collaborative learning?

6) What kinds of cooperative learning (e.g., working with other students in helping each other to understand difficult concepts) have you participated in that relates to the steel band music ensemble?

7) Please explain what activities (i.e., examples) occurred during the cooperative learning.

8) How did the cooperative learning influence your collaborative learning activities in the music ensemble?

9) What kinds of reflection (e.g., thinking and pondering over a problem, activity, or process) have you participated in that relates to the steel band music ensemble?

10) Please explain what activities (i.e., examples) occurred during the reflection activities.

11) How did the reflection influence your collaborative learning in the music ensemble?

12) How would you describe the classroom instructor's leadership and teaching style?

13) How did the classroom instructor's leadership and teaching style influence the class and the class's learning activities?