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LAPTOPS AND LANGUAGE LEARNING:
A MIXED METHODS STUDY OF TECHNOLOGY INTEGRATION AND STUDENT
ENGAGEMENT

by
Ginger Starks-Yoble

A DISSERTATION

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Under the Supervision of Professor Aleidine J. Moeller

Lincoln, Nebraska

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Ginger Starks-Yoble, Ph.D.

University of Nebraska, 2014

Adviser: Aleidine Moeller

Student engagement and motivation have been a common focus among educational researchers over the last forty years. Self-determination theory and the inclusive definition of self-regulated learning have identified that both cognitive and motivational engagement are paramount for successful language learning. Within this canon of research, few have looked at student engagement as a result of effective technology integration during the language learning process. This mixed methods study explored students' perceptions of engagement while learning with technology integration in a first-year language class. Qualitative data was collected from a sub-sample of ten students, in the form of semi-structured interviews, journal reflections, student work samples and stimulated recall sessions. Quantitative data was generated from a sample of forty students (including the sub-sample) who completed a pre- and post-motivated strategies questionnaire. The results of this study further developed a comprehensive understanding of how technology integration impacted student engagement at the beginning level of language learning.

Dedication
To my husband and my students

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CHAPTER 1

INTRODUCTION

Context of Study

In 8th grade German at Maze Middle School, students were given a break from traditional language learning and assessment. Instead, they had the chance to utilize their school provided laptops to creatively express their ideas and demonstrate their communicative language skills. Specifically, students used their laptops to demonstrate their learning and to reinforce their use of the target language in terms of the interpretive, presentational and to some degree interpersonal modes of communication. Students used their laptops to enhance interpretive communication as they demonstrated understanding of online resources and texts to create products that represented comprehension of those texts and resources. Presentational communication was enhanced as students completed technology-based projects and presented their work to an audience of their peers. Finally, though not exclusively in the target language, students practiced interpersonal communication while peer editing and negotiating meaning with regards to word choice and language structures. To further understand what a learning task in German involved, an example of a typical lesson included:

- Students completing an online survey about free time and their preferences between pop culture icons. The classes would then review and discuss the results.
- Students creating a concept web of their ‘favorites’ (variety of topics) on their laptops as homework.

- Students writing sentences using the comparative and superlatives forms to express their preferences and select images from the Internet to represent each of their favorite items. These illustrated sentences would then be used as speaking prompts and discussed with their classmates.
- A narrated digital presentation would be created that included three different categories from the original concept map. Each slide must have an image and include a descriptive sentence about items they liked, preferred or valued the most and why.
- Presentations would be exported as movie files and uploaded to the class Blog. The students could then view each other's work and offer feedback and commentary.

Throughout the phases of this lesson, students were provided the appropriate amount of instruction regarding their grammar acquisition and rubrics to detail the expectations for the tasks. This guidance allowed students to feel comfortable, take risks and develop competency as they learned. Packaging language acquisition with effectively integrated technology created an observable level of engagement and enthusiasm by the students in this German class.

Statement of the Problem

A learning environment that offers autonomy, meaningful contexts, and scaffolded learning activities reinforces effective language acquisition. Combined, these elements promote cognitive and motivational engagement (Deci, 1991; Guthrie, 1998; Zimmerman & Schunk, 1989). In this sense, an engaged learner is more than just a student raising their hand because they know the answer or want to volunteer

information. Rather, an engaged learner is emotionally and cognitively captivated and connected with the learning experience (Lowe, 2010). For substantial language learning to occur, students need to be more than passive recipients of verb forms and vocabulary. Learners must be active and encouraged to participate in tasks that are meaningful, contextualized and interesting.

The last decade of the digital revolution brought about major changes for student engagement in the world language classroom. Learning and instruction advanced beyond uniformity, didacticism, and teacher control to encompass new characteristics, such as customization, integration, and user-control (Collins and Halverson, 2009). Highlighting technology as the new texture to our current social fabric, Wang (2005) identified the changes found in today's classrooms, from writing essays and reading magazines to writing emails and researching online. Collins and Halverson (2009) noted this shift and asserted "trying to prepare students for the 21st-century with 19th-century tools is like teaching people to fly a rocket ship by having them ride bicycles" (p. 10). Hong et al. (2010) also emphasized the importance of a transition from the traditional paradigm of language learning to a new model that is enhanced with effective technology integration. By adopting new instructional strategies that effectively utilize technology, language teachers can support student engagement and ensure higher quality learning (Revere & Kovach, 2011).

Teachers must take a multi-angled approach in order to foster student engagement. In addition to supporting the basic elements of self-determination theory (SDT), they must also create learning activities that are meaningful and relevant, all the while taking student perspectives and interests into account (Deci, Vallerand, Pelletier &

Ryan, 1991; Zepke & Leach, 2010; Guthrie et al., 2004). Going to these lengths facilitates enjoyable learning experiences that, in turn generate positive emotions and deeper engagement. Hagenauer and Hascher (2010) outlined that when students experienced a positive affect while learning, they benefited in several ways. In addition to higher engagement with the learning task, these benefits included an increased sense of well-being, increased intrinsic and autonomous motivation, and more elaborate uses of cognitive strategies. In contrast, when learning scenarios failed to compel students through relevancy or novelty, students experienced boredom and disengagement (Collins and Halverson, 2009).

Hagenauer and Hascher (2010) asserted that middle school students experience a decline in the enjoyment of learning because of pubertal changes and a mismatch between learning opportunities and the needs of adolescent learners. While middle school students have an increasing need for autonomy, structure, and opportunity to express their egocentric ideas, instructional approaches at this level are often teacher-oriented and geared toward classroom management. Ironically, such efforts by the teacher may perpetuate negative student behavior (Hagenauer & Hascher, 2010). A student's individual need for relatedness also suffers while the quality of social interactions decrease and the teacher's workload increases. This results in less time for meaningful relationship building and instructional support. When the psychological needs of students are not met, "the self-determined learning motivation that is strongly connected to positive emotional experiences cannot develop" (Hagenauer & Hascher, 2010, p. 499).

In order to support student engagement at this critical time of cognitive development, teachers must provide students with positive learning experiences in a nurturing but structured learning environment. Achieving this begins with teachers taking proactive steps in their own classrooms. When considering the digital nature of today's students, teachers can promote self-determined learning by adapting instructional techniques to meet the styles and needs of their students. By supportively challenging students, encouraging relationships in the learning environment, and providing the chance for autonomy, teachers can increase student engagement and contribute to an overall better learning experience (Deci et al., 1991).

Middle school students are predisposed to decreased learning enjoyment. Therefore, it is necessary for teachers and researchers to consider their perspectives on learning as instructional techniques and curriculum are modified to best meet these students' needs. Gathering data representative of students' perceptions might lead to a deeper understanding of student motivation and self-regulation; two contributing factors of engaged learning (Huang, 2009). Though there is a large canon of research surrounding learning and engagement in general, there has been little focus on middle school students and engagement when technology is integrated in the second language classroom. Fredricks et al. (2004) pointed out the "narrow array of research methods used to study engagement" and called for more mixed methods approaches to this field of study (p. 86). By using mixed methods research design to focus on engagement in the world language classroom, this study will contribute to the diversity of inquiry methodologies that explore student engagement within the language-learning context.

Purpose of the Study

This mixed methods study addressed 8th grade German students' perceptions of engagement when technology was integrated in the learning process. It utilized an embedded design model, where one form of data served to support the other. The study explored student engagement, language learning and technology integration in a beginning level German class situated in a large, mid-western, middle school. Data were concurrently collected using both qualitative and quantitative methods (Tashakkori & Teddlie, 2003). With primary focus placed on student perceptions of engagement, qualitative data were gathered from a pilot study, semi-structured interviews, stimulated recall sessions and student journals. The secondary purpose of this study was to gather quantitative data from an adapted Motivated Strategies for Learning Questionnaire (Pintrich, Smith, Garcia, & McKeachie, 1991). This instrument assessed different aspects of students' engagement, including task value, elaboration, organization, critical thinking, self-regulation, and effort regulation. By using a mixed methods approach, this study utilized the strengths of both inquiry methods in order to develop a deeper understanding of student engagement and effective technology integration (Creswell & Plano-Clark, 2007).

Research Questions

This mixed methods study was driven by the following research questions:

Qualitative Questions

- How do beginning level language students describe their engagement when recalling technology-based assessments in German class?

- What is the nature of the student experience when technology is integrated in their language learning process?

Quantitative Questions

- How do 8th grade students rate their motivated strategies for learning throughout the course of the year while using technology in German class?

Mixed Methods Question

- How does effective technology integration maximize student engagement in a beginning level language German class?

Definition of Terms

Critical Thinking involves how students apply prior knowledge to new learning scenarios as a means to problem solve, make decisions or make evaluations with respect to standards of excellence (Pintrich et al., 1991).

Effort-regulation refers to the ability a student has to control their effort and attention when presented with distractions and uninteresting tasks. When regulating effort students demonstrate a commitment to completion of a learning task/objective. Managing effort is a strategic element of academic success because it “signifies goal commitment” and “regulates the continued use of learning strategies” (Pintrich et al., 1991, p. 27).

Elaboration strategies are techniques utilized by students to help them connect and integrate new knowledge with information located in long-term memory (Pintrich et al., 1991).

Organization strategies help the learner select appropriate information and also construct connections among the information to be learned. Examples of organizing

strategies are clustering, outlining, and selecting the main idea in reading passages.

Organizing is an active endeavor and results in the learner being closely involved in the task. This should result in better performance (Pintrich et al., 1991).

Self-determination is in place when students' actions stem from their own motivation. When students' psychological needs for autonomy, relatedness and competency have been met, they will become self-determined learners (Deci et al., 1991).

Student engagement encompasses the motivation and cognitive strategies put forth to successfully complete a task (Guthrie, 1998; Lowe et al., 2010; Zepke & Leach, 2010).

Self-regulation refers to the awareness, knowledge, and control of cognition. Self-regulatory behaviors include planning, monitoring, and regulating. Planning activities function as advanced organizers, which help build connections between prior and new knowledge. These connections assist the organization and overall comprehension of new learning content. Monitoring activities, like self-testing and referring to resources also assist learners in understanding the material and integrating it with prior knowledge. Finally, regulating is the fine-tuning and adjustment of learning output. Activities like proofreading and peer editing help learners identify and correct their behavior in learning tasks (Pintrich et al., 1991).

Task Value amounts to a student's belief of how interesting, important, and useful certain learning tasks are. A student who highly values a task is likely to be more involved in their learning (Pintrich et al., 1991).

Limitations of Study

Purposeful and convenient sampling is a limitation to consider in this study. From the full sample of forty beginning level German students, a subset of ten students was selected using maximum variation according to their academic achievement in German class. All students were anonymously grouped as high, middle and low achievers. Three participants from each group were randomly chosen and invited to participate. In all, ten students agreed to participate including three students from both the high and low achieving groups and four from the middle achieving group. Though steps were taken to represent diverse perspectives and abilities within this case, the sample (n=40) and subset sample (n=10) are small, making it difficult to generalize the quantitative findings (Creswell, 2007).

Qualitative and quantitative data were gathered via self-reporting techniques. This form of data collection can lead to response errors. Participant responses may be limited due to difficulty in accurately recalling experiences or their responses could be influenced by previous answers or other external factors (e.g. classmates, teacher, tasks, classroom) (Harris & Brown, 2010; Creswell, 2005).

When using stimulated recall as a qualitative data collection method, time is significant. The amount of time between an experience and the recall session, the more detached or diluted a participants memory may be (Gass & Mackey, 2000). Though stimulated recall sessions were scheduled as promptly as possible after the completion of assessments, the amount of time between the completion of the project and the subsequent recall session is another limitation to consider.

A possibility for bias exists when data are concurrently collected. To avoid this potential bias, the quantitative data was collected in form of a pre- and post-test at the beginning and end of the year. Meanwhile, qualitative data was collected at six specific points throughout the course of the year (Greene, Caracelli & Graham, 1989).

The purpose of a case study is to gain an in-depth understanding of the specific case selected. Therefore, the qualitative results in this study are limiting in that case study design does not “optimize production of generalizations” (Stake, 1995, p.9).

Delimitations of Study

This study did not address student achievement and therefore cannot validate whether student engagement fostered by technology integration relates to increased achievement. Instead of using academic performance as an indicator of engaged learning, this study explored students’ perceptions of their engagement when technology was effectively integrated in the language learning process.

The investigator of this study played a dual role of researcher and teacher of the student participants. Such a scenario allows for personal bias to filter the data collection and analysis procedures. On the other hand, teacher-researchers have valuable access and insight when researching for the benefit of student learning (Babkie & Provost, 2004; Zeni, 2001). In effort to ensure accurate representation of participant perceptions, the researcher bracketed her biases in this text to remain objective throughout the various phases of the study.

The sample and site of this study were chosen for specific and unique reasons. “Maze Middle School,” the setting for the study, provided every 8th grade student with his or her own MacBook laptop. Students’ immediate and individualized access to

technology (laptop) was an integral component of this case study. Another contributing factor to the selection of this case was the teacher's efficacy and experience with integrating technology in her German curriculum. Chapter 3 provides further discussion surrounding the ethical issues involved with researching in "one's own backyard" (Creswell, 2005).

Assumptions

Certain assumptions have been made regarding the basis of this study. The use of technology in the foreign language classroom has been demonstrated in previous studies to have a positive impact on student learning (Nelson, Christopher, & Mims, 2009; Ashburn & Floden, 2006; Collins & Halverson, 2009; Kitsantas & Dabbagh, 2011). Technology enhances many facets of learning including level of engagement, interaction with learning content and frequency of interactions with learning tasks (Arand, 2004). The current study draws on this body of research, focusing on how technology impacts the level of engagement according to student perception.

Another assumption of this study is that middle school students are viable resources from which to gather qualitative and quantitative data. A pilot study was conducted to inform the researcher how well middle school students were able to respond to the semi-structured interview items and the stimulated recall prompts. Student responses from both were rich and descriptive, indicating 8th grade students were reflective and aware enough of their learning to provide meaningful data.

In the quantitative data, it was assumed that students responded truthfully to thirty items relating to the motivational strategies students put forth in German class. To ensure truthful responses, another teacher administered the questionnaire and all students were

informed their responses were confidential. In addition, all participants willingly volunteered to participate in this study. Based on their willingness to participate, it can be assumed they provided truthful responses on the pre and post-questionnaires.

A final assumption focuses on how the sample and subset in this mixed methods case study represent the larger population of beginning level language students. While the 8th grade German students in this study demographically represented other language students at this middle school, the variables of how technology is integrated for the purpose of language learning and the teacher's high level of TPACK (technological pedagogical content knowledge) make this case unique (Mishra & Koehler, 2006). From the sample of forty 8th grade German students, a subset was purposively selected in order to gain a deeper understanding at the participant level. The subset participants were chosen according to academic achievement in order to maximally represent the academic diversity of students within this case.

Significance of Study

This significance of this study lies in its ability to represent student perspectives regarding engagement, technology and language learning. The findings may contribute to a better understanding of how language teachers can integrate technology in order to improve instruction and enhance acquisition. Language teachers, administrators and curriculum developers benefit from these insights at a time when language programs, especially smaller ones like German, are in threat of being eliminated due to budget restraints and dwindling enrollment. By addressing the student perspective, professionals committed to improving and preserving language learning in schools can modify their strategies to reflect student input.

With a better knowledge of how students describe their engagement and motivation, classroom teachers and curriculum developers will be able to create technology-based instruction and learning tasks that engages students in a meaningful way. In turn, student enrollment in language classes that are known for being enjoyable and engaging will eventually increase along with overall all achievement. Administrators benefit from this knowledge as well, in that they can implement professional development opportunities and expectations that help instructors gain confidence and experience with effective technology integration.

Considering there are limited mixed methods design models within the field of foreign language education research, it is critical to conduct more studies that use mixed methods inquiry design (Rocco et al., 2003). Integrating qualitative data reflective of student perspective and quantitative data representative of the motivated strategies for learning offers insight into the nature of student engagement and technology integration. Methodologically, this study contributes to the mixed methods research by demonstrating how different forms of data can be collected in order to further reinforce or refute findings.

CHAPTER 2

REVIEW OF LITERATURE

Student engagement requires a desire to be cognitively connected to a learning task or goal. A student will become engaged when they are motivated to regulate their effort and attention to the quality of their learning objective. In the language classroom, this is achieved by providing students the chance to demonstrate their language skills using technology and the Internet. To gain a comprehensive foundation for this study, previous research was reviewed in multiple areas. Self-determination theory and the theory of self-regulation were reviewed in order to better understand the conditions and elements necessary for engaged learning to occur (Deci et al., 1991; Zimmerman & Schunk, 1989). With an understanding of the necessary elements for students to regulate their learning, it is important to also examine how technology influences student engagement in general and specifically within the language learning context.

Self-Determination Theory

According to self-determination theory (SDT), student actions are self-determined when they stem from a student's own motivation and volition. In contrast, student actions are controlled when they stem from compliance with outside regulatory processes (Deci et al., 1991). The distinguishing element is whether a learner's actions are self-determined or controlled by the teacher. To encourage self-determination, teachers must abandon carrot-and-stick motivation strategies and focus on students' core psychological needs for autonomy, competence and relatedness. Autonomy is defined as students having a sense of choice or volition. Competence entails students' belief in their ability to achieve important outcomes. Relatedness suggests there is a sensation of having

supportive social groups (Stone, Deci, & Ryan, 2009). In combination, these elements can lead students to becoming self-determined learners.

Teachers can nurture self-determination by “offering choice, minimizing control, acknowledging feelings and making available information that is needed for decision making and for performing the target task” (Deci et al. 1991, p. 342). By satisfying these needs and providing appropriate support in the classroom, teachers can facilitate motivation, performance and cognitive development (Deci et al., 1991). Teachers who do not recognize the change in the culture and climate of education may be able to deliver short-term gains, but are unknowingly contributing to the long-term problem of disengaged and apathetic learners.

SDT & Motivation

Self-Determination Theory has been compared to numerous motivational theories. While Action Regulation Theory functions on the premise that behavior control and task complexity lead to optimal performance, SDT specifically identifies both intrinsic and extrinsic motivation as predictors of “effective performance and psychological health” (Gagne & Deci, 2005, p. 342). In their 2004 study, Vansteenkiste, Simons, Willy, Sheldon and Deci support SDT and put forth that autonomy-laden environments enhanced learning by encouraging increased autonomous motivation and self-regulation. Neither Kanfer’s Task-Specific Motivation Theory nor Hackman and Oldham’s Job Characteristics Theory recognize the various forms of extrinsic motivation. In contrast, SDT considers extrinsic motivators, such as the teacher’s affective influence, and whether or not they provide controlled or autonomy-supportive learning environments (Gagne & Deci, 2005). SDT also asserts that learners would demonstrate positive

outcomes when their psychological needs for autonomy, competency and relatedness were satisfied (Gagne & Deci, 2005).

For active engagement in the learning process to occur, students must value their learning and achievement, even if they are not intrinsically interested in a topic or particular activity. Students can be motivated to “internalize the regulation of uninteresting behaviors” if the tasks are deemed valuable for effective functioning or useful skills (Deci et al., 1991, p. 338). When students are self-determined, motivation and engagement increases “by enabling students to customize and take control of their own learning through conscious knowledge of effective strategies and choices” (Campbell, 2009, p. 98). With the strategic combination of autonomy, guidance, and meaningful context, in conjunction with a collaborative learning environment, teachers have the necessary elements to foster student engagement and intrinsic motivation.

Stone et al. (2009) offered a prime example of how meeting the basic psychological needs of SDT impacted learning environments. The study addressed autonomy and motivation in the Kansas City public school system. A comprehensive school reform, known as First-Things-First, was based on the core principles of SDT and aimed to help improve low-performing schools serving disadvantaged students. After the school reform, large schools were restructured into smaller learning communities and building administrators were provided professional development geared at making learning meaningful and engaging. After five years, the schools were able to foster an environment that supported autonomy for teachers and students. This was demonstrated when “school attendance, students’ relationships with teachers, levels of engagement in

learning, achievement and high school graduation rates all improved” (Stone et al. 2009, p. 87).

Intrinsic and extrinsic motivations are fundamentally related in that they both appear on a continuum of self-determination. Autonomous students with intrinsic motivation seek enjoyment and satisfaction when learning. In contrast, externally controlled students are often less interested, excited and confident about their performance. Deci and Ryan’s Cognitive Evaluation Theory suggests an inverse relationship between extrinsic and intrinsic motivation within the context of self-determination. This theory focuses on how intrinsic motivation can be enhanced in learners by providing them the scaffolded support necessary to experience competence, autonomy and self-efficacy (Ryan & Deci, 2001).

In their exploration of self-determination theory within the language-learning context, Noels et al. (2003) set out to develop an instrument to assess the different sub-levels of intrinsic and extrinsic motivation. These researchers discussed the term of identified regulation, which explains how students who are not intrinsically engaged with the learning objective can still recognize the extrinsic purpose and value of completing the learning tasks (Noels et al., 2003). Therefore, student engagement is not driven by personal interest, rather it stems from students’ ability to recognize the task’s importance as a means of achieving a goal or avoiding a consequence.

Intrinsic motivation is not enough to ensure effective and sustained language acquisition (Noels et al., 2003). For this to occur, students must understand and appreciate the values and benefits of learning a second language. Noels et al. (2003) reported “the more internalized the reason for L2 learning, the more comfortable and

persevering students claimed to be” (p. 53). Intrinsic motivation is a key construct of self-determination. When students are “learning out of interest and enjoying their learning activities, they experience what it means to be an origin of their behavior rather than a pawn to social forces” (Reeve, J., Ryan, R., Deci, E., & Jang, H., 2008, p. 234).

Previous research has demonstrated that by meeting students’ psychological needs of autonomy, competency and relatedness, they became self-determined and engaged with learning. These needs are met within environments that support student choice and perspective that challenge students while making them feel competent, and that offer them a sense of relatedness. Creating such an environment for language learning would likely generate motivation and engagement as students begin to grow in regulating their learning.

Self-Regulated Learning (SRL)

When students engage in well-designed learning tasks, self-regulation begins (Zimmerman & Schunk, 1989). Self-regulated learning (SRL) is a proactive process which students use to help develop their academic skills. During this process, a student identifies their learning objective and strategically selects skills or techniques to use in order to successfully complete the task. Zimmerman (1990) identified SRL as the degree to which students are “metacognitively, motivationally, and behaviorally active participants in their own learning process” (p. 4). SRL has been described as being an active and constructive process, in which students regulate learning and motivation, set goals, and attempt to monitor their behavior (Schunk, 2005). Central to self-regulation is whether or not the learner demonstrates initiative, perseverance and adaptive skill (Zimmerman, 2008). A student’s willingness to self-regulate indicates an auspicious

learning environment that supported autonomy, created community, and utilizes scaffolded learning within meaningful and relevant contexts.

Theories of self-regulation are rooted in three main principles (Zimmerman & Schunk, 1989). The first principle is that students are capable of improving their abilities through strategic use of metacognitive and motivational strategies. Next, students are able to create or find conducive environments for learning to occur. Then, students can identify and decide how much external instruction they may or may not need.

Zimmerman (1990) discussed how students experience a “self-oriented feedback loop” when they work through a task, reflect upon the experience, monitor their learning strategies, and adjust accordingly (p. 5). These principles of self-regulation show why it is imperative for students to work within a learning environment that allows them to exhibit self-awareness and be able to manage the processes of self-regulation.

Zimmerman & Schunk (1989) report that as children mature, they become more self-aware and have an “increased ability to differentiate between academic and social competence.” (p. 21). Therefore, it is important that middle-level teachers take into account instructional approaches that foster self-competence within their students. When students begin their academic career, they are unaware of the upcoming challenges they will face. However, as the years pass, students develop an understanding of what they are able to accomplish and the effort it will take. By the time students reach their adolescent years, they begin to recognize that academic success requires more than just effort (Paris & Byrnes, 1989). Strategic guidance and instruction helps students recognize that when faced with challenges, they are still capable of achieving great things.

Three factors that contribute to a student's self-competence are ability, agency and control (Paris & Byrnes, 1989). While getting students to identify their ability, it is also imperative to help them believe they have the ability to successfully achieve. A student's personal agency is defined as "a strong belief in one's ability to use specific actions effectively to enhance successful performance" (Paris & Byrnes, 1989, p. 176). Research has demonstrated that believing in one's self can lead to confidence that an individual can, with reasonable effort, successfully complete a learning task (Paas et al., 2005). Combined with ability and agency, students must also have control of the amount of exertion they are willing to invest in their learning. When operating with high levels of self-efficacy and belief in one's ability, students are likely to exert more effort and control their focus in the learning scenario.

Through years of extensive research, different forms of motivation as related to SRL have been identified (Schunk & Zimmerman, 2008). The first form of motivation is goal orientation, which is further divided into performance and learning goals. While performance goal orientation is rooted in the idea of fixed or limited intelligence, learning goal orientation centers on an incremental theory that views intelligence as malleable (Schunk & Zimmerman, 2008). In terms of SRL, incremental learners are more likely to use self-regulated learning strategies in an effort to seek improvement.

Self-efficacy and outcome beliefs are also motivational constructs that intersect within the processes of SRL. Academic self-efficacy beliefs, according to Parajes (2001), influence all phases of self-regulation: forethought, performance, and self-reflection. In a similar pattern, motivation presents itself in the various stages of regulation: first as precursor, then as a mediator, and finally as concomitant outcome.

Students with strong self-efficacy that regulate their learning use more cognitive and metacognitive regulatory skills. This is evident in their increased diligence and persistence in the face of adversity (Schunk & Zimmerman, 2008).

Another element of self-regulation centers on students valuing the purpose or content of what they are learning. Schunk & Zimmerman (2008) divided task value into four main values: attainment, intrinsic, utility and cost. Attainment value involves the perceived importance of a task. Intrinsic value reflects the immediate enjoyment one gains from doing a task. Utility value involves why a task is important to a student. Cost value refers to the perceived consequences associated with completing a particular task. The role of task value is significant because although a student may feel confident or competent about a certain activity, “they may not feel motivated to learn, unless that task has particular value to them” (Schunk & Zimmerman, 2008, p.13). Students who hold a high value for a task or activity are more likely to make use of self-regulatory strategies as a mechanism to positively regulate their learning.

Wigfield, Hoa, and Klauda (2008) underscored the importance of task value throughout the phases of SRL. Beginning at the forethought phase and ending with self-reflection, highly valued tasks prompt better planning at the beginning, generate more self-monitoring during the performance, and encourage motivation for future academic endeavors in the reflection stage. In order to achieve this, “students must regulate their cognition, motivation and affect, behavior, and the contexts in which the learning is occurring” (Wigfield et al., 2008, p. 173).

Wigfield et al. (2008) also discussed how the intrinsic values of seventh-grade students related to their reported use of cognitive and self-regulation strategies. When

students deem their schoolwork important, they report using self-regulatory strategies as a means to master the challenging material. Some of the strategies employed are planning, comprehension monitoring, persistence and diligence. For this study, Wigfield et al. (2008) found that,

“Intrinsic value was not directly related to permanent outcomes; rather, cognitive strategy use and self-regulation significantly predicted academic performance, with value related to cognitive engagement and regulation. This finding suggests that the role of values in the regulation of achievement behavior is to determine (in part) the extent to which the individual engages cognitively in the activity and regulates this activity, with these two variables relating more directly to performance” (p.177).

While student reports of task value are a strong predictor of self-regulated learning strategies, research also indicates that they are not a significant predictor of academic achievement. The researchers reported results of a 1996 study that indicates “students who focused either on learning material for its own sake or on social comparison had higher levels of interest, perceived greater utility, and regulated their learning behavior more than students focused on grades” (p. 178). This further demonstrates that students who attach high task value to an activity are prompted to employ motivation regulation strategies.

Tseng et al. (2006) explored the phenomenon of self-regulated learning within the context of foreign language acquisition. When examining how SRL impacts vocabulary acquisition, Tseng et al. (2006) promoted the Motivated Strategies for Learning Questionnaire (MSLQ) as a valid instrument for measuring learner self-

regulation during second language acquisition. The team suggested that questionnaires focusing on learner self-regulation can “provoke a more psychometrically sound measure of strategic learning than traditional language learning strategy scales” (Tseng et al., 2006, p. 78). The researchers’ emphasized the actual regulation of learning and not merely the end product. However, they were faced with the challenge of distinguishing between strategic and normal learning. The authors asserted that:

“It is not what learners do that makes them strategic learners, but rather the fact that they put creative effort into trying to improve their own learning. This is an important shift from focusing on the product—the actual techniques employed—to the self-regulatory process itself and the specific learner capacity underlying it.” (Tseng et al., 2006, p. 81)

Tseng et al. (2006) pointed out that during the last decade, the majority of previous research in this area used the Strategy Inventory for Language Learning (SILL) as a data collection instrument. At first, the SILL appears to be similar to the MSLQ, but with closer inspection, two major differences are notable. The first difference is that the SILL has a different type of scale ranging from ‘*never or almost never*’ to ‘*always or almost always*’. Second, the two instruments assess different items. While the MSLQ is more general in nature, the SILL tends to be more specific, focusing on individual learning strategies (Tseng et al., 2006). In the context of a world language classroom, the MSLQ can help teachers to understand that the most important aspect of strategic learning is not the exact nature of the specific techniques that students employ, but rather the fact that they choose to exert creative effort in trying to improve their own learning.

Huang (2010) looked specifically at how convergent and divergent assessment techniques had an impact on ESL students' motivation and self-regulation strategies. According to Huang, there is a critical difference between assessment *for* learning and the assessment *of* learning. When the intention is to assess *for* learning, it is imperative to consider student motivation and learning strategies. Students are enabled to learn better when they experience positive motivation, which in turn fosters deeper engagement in the learning activity. In a discussion about student motivation and completing divergent assessments, Huang (2010) underscored the likelihood of students dedicating more cognitive energy and effort to tasks that were meaningful and engaging. These divergent assessments focus on learners' understanding rather than on the agenda of the instructor. Such assessments are meant to discover what the learner knows, understands and can do. They are characterized by less detailed planning, where open questions, and tasks are of more relevance. Huang (2010) put forth that with opportunities like divergent assessments, the creative effort students put into trying to improve their own learning is what constitutes strategic or regulated learning. By integrating divergent assessments into the language-learning curriculum, teachers can reinforce productive goal orientations and strategies (Huang, 2010).

Student Engagement

Three main definitions of student engagement exist within the educational research (Fredrick, Blumenfeld, & Paris, 2004). The first describes engagement in terms of behavior and involves participation in academics and social activities. Next, emotional engagement centers on the positive and negative reactions learners experience and environment in which they are learning. If these reactions are positive, students are more

likely to complete work. Finally, cognitive engagement indicates that students will intentionally put forth effort in order to improve learning and skill development. Guthrie and Cox (2001) asserted that when students are engaged in a meaningful learning task, they are more likely to become intrinsically motivated. Engaged readers strategically employ cognitive techniques to help comprehend meaning in a variety of texts (Guthrie, 1998). In general, a student's engagement is the result of experienced autonomy, a sense of relatability, and a sense of competency (Deci et al., 1991; Jang, Deci & Reeve, 2010).

Engagement and Motivation

In their 2004 study, Guthrie et al., found that a great deal of effort and motivation are required in order to develop reading and comprehension skills. To harness this effort and motivation, “outstanding teachers invest substantial time and energy in supporting students’ motivation and engagement in reading” (p. 403). Guthrie and his team established a theoretical perspective for engagement within a reading comprehension context. This perspective claims three points: students are engaged when a task is motivating and strategic; engagement correlates with achievement in terms of reading comprehension; and instructional practices increase motivation, cognitive strategies and overall engagement.

According to Guthrie and Cox (2001), teachers can foster engagement and motivation by allowing students’ interests, preferences and ideas to guide their learning. The researchers highlighted two primary points of concern, which involve the over- and under-management of variables. Under-management of these conditions can prove to be insufficient for effective learning, while over-management can become too contrived and

complicated. Creating an environment that sustains a balance between structure and engaged learning is not only challenging, but also essential.

Engagement and Autonomy

Teachers who are supportive of learner autonomy facilitate engagement by taking students' perspectives, needs, interests and learning styles into account (Jang, Deci, & Reeve, 2010). Strategically structured learning activities present comprehensible input and appropriately challenge students while offering necessary support. Such activities act as a catalyst for students to regulate their level of effort while achieving learning goals (Jang, Deci, & Reeve, 2010). In addition, students have the opportunity to develop communication skills within meaningful and relevant contexts. In their discussion of fostering self-regulation, Jang, Deci, and Reeve (2010) emphasized the tendency of expecting more self-regulation from older students. Despite this expectation, as students progress in school, they often become less engaged and are less likely to actively participate. To proactively respond to the potential of decreased engagement in older students, it is critical for teachers at all levels to develop instructional techniques that reinforce entertaining and engaging learning opportunities.

Effective student engagement requires more than an opportunity for choice. In fact, "too much autonomy is bewildering" and not enough is "boring" (Guthrie, 1998, p. 185). Beyond an autonomy-supportive learning environment, teachers must also provide a strategic amount of structure that supports students through their learning activities. When creating structure for learning, teachers should be explicit about the learning objective and the plan intended for achieving that goal. Teachers should define the limits for the task and then allow the students' autonomy to regulate their learning.

Technology Integration

The technology revolution has created a demand for society to continually update their digital proficiency. This revolution is responsible for spurring dramatic changes in education in both the way students are taught and in how they learn. When technology is effectively integrated in the learning process, there is potential for increased student engagement and learning (Revere & Kovach, 2011). In the context of language learning, technology and web-based activities provide students with motivation and autonomy that engage them in the language learning process (Son, 2007). After reviewing relevant literature, Hong (2010) concluded that by providing proper and sufficient training in computer-aided language learning, L2 teachers could develop confidence, competency and positive regard for technology integration. Supporting the understanding and utilization of computer technology for pre-service and current language teachers' further reinforces student engagement and language learning.

Technology and Engagement

When researching first year college students, Arand (2004) found that the use of technology plays a significant role in student engagement. The participants communicated more with instructors, collaborated more with one another, completed more work, and in some cases were more creative. The researcher suggested that too many educators are unwilling to embrace technology integration. This study further posited that teachers and students should seize the opportunity to change and improve the overall quality of their work instead of relying on the basic uses of technology. According to Nelson, Christopher and Mims (2009), "necessity dictates that we cultivate the development of creative, skilled, life-long learners...who actively engage with

content [and] take responsibility for their own learning” (p. 81). Using technology tools, teachers demonstrate their technological, pedagogical and content knowledge (TPACK) with scaffolded learning tasks. These tasks involve collaborating, promoting a deeper level of understanding, solving problems creatively and transforming student thinking (Nelson, Christopher & Mims, 2009).

Considering learners decide what is “valuable to them and what they want to learn, how they want to learn it and how they want to spend their time learning,” it is significant to address the role technology integration can play in today’s classroom (Collins & Halverson, 2009, p. 18). When spotlighting the popularity of computer games, Collins and Halverson (2009) reported that new media technologies can also enhance learning by increasing student engagement. For example, “drill and practice games, such as typing tutors and Math Blaster, can entice children to learn content that they might otherwise consider boring” (Collins & Halverson, 2009, p. 19). Technology integration also provides students the opportunity for meaningful reflection. Three types of reflection that are enhanced with technology involve looking at the process, comparing one’s performance to the model sample, and evaluating the performance according to the set rubric standards. In this way, technology offers “real opportunities for students to improve their performance over time by building opportunity for reflection into learning environments” (Collins & Halverson, 2009, p. 27).

Web 2.0 and Meaningful Learning

Web 2.0 technologies afford students opportunities to seek information, communicate, negotiate meaning and evaluate final products (Nelson, Christopher & Mims, 2009). Web 2.0 “has a collaborative and community oriented nature which is

evident in tools like blogs, social networks, communication tools...personal organizers and video games” (Wood, 2011, p. 8). When integrated within a meaningful learning context, these Web 2.0 tools foster self-regulation by allowing students “to refine their performance efforts systematically, especially during the initial stages of learning a new task” (Kitsantas & Dabbagh, 2011, p. 102).

Ashburn and Floden (2006) defined meaningful learning experiences according to the definition put forth by the TIME Project, which stands for Technology Integrated into Meaningful Learning Experiences. They posited that meaningful learning experiences are systematic and intentional opportunities to achieve a “deep and enduring understanding of complex ideas,” and abilities “in working with complex problems and content that are both central to the discipline and relevant to students’ lives” (p. 8). The relevancy of technology integration is underscored by pointing out how teenagers are confused why teachers so seldom employ the Internet to motivate them (Strom, Strom, Wing & Beckert, 2009). In addition, all the public schools in this study had Internet access, yet merely 33% of the students reported using online tools for learning in class or for homework (Strom et al., 2009).

A comprehensive review of the previously discussed literature is foundational for addressing the research questions posed in this study. Knowledge of these theories provides context for analyzing and understanding the student perspective of engagement and effective technology integration.

CHAPTER 3

METHODOLOGY AND PROCEDURE

Philosophical Assumptions

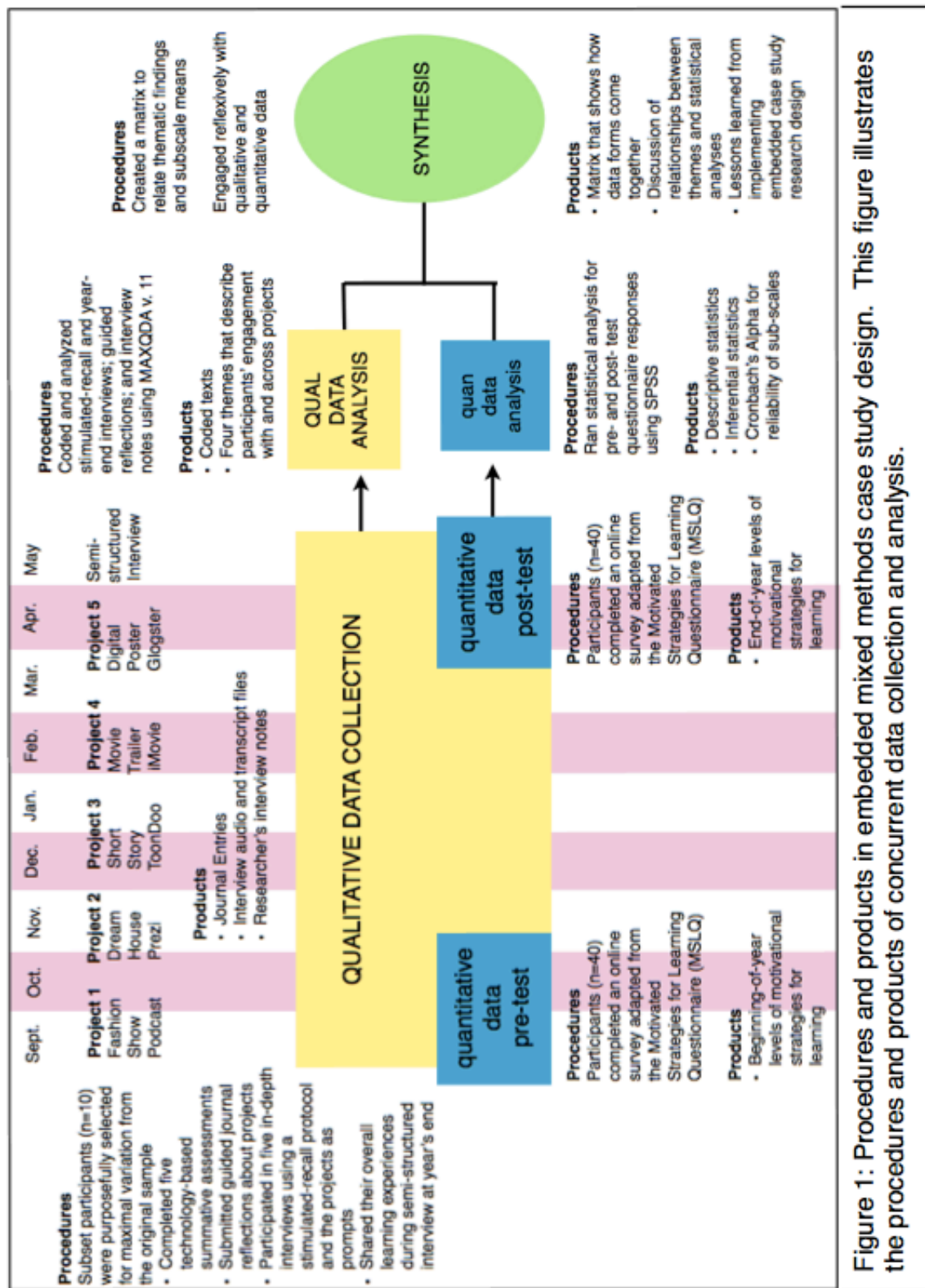
As unique methodologies, qualitative and quantitative research are characterized by different worldviews that guide inquiry. Qualitative research is frequently conducted within a constructivist framework believing that knowledge is subjectively constructed through social experience. Quantitative research, on the other hand, often follows a positivist paradigm, which is more objective and believes that knowledge is gained through empirical evidence (Creswell, 2007). Though some believe that multiple worldviews like these are not compatible, advocates of “paradigm pluralism” suggest otherwise (Teddle & Tashakkori, 2012; Greene, 2006; Johnson & Onwuegbuzie, 2004). Teddle and Tashakkori refer to paradigm pluralism as “methodological eclecticism” and emphasize “diversity at all levels of the research enterprise” (2012, p. 776). These authors define methodological eclecticism as when “MMR practitioners select and creatively integrate the most appropriate techniques from a wide variety of QUAL, QUAN and mixed strategies in order to thoroughly investigate the phenomena of interest” (2012, p. 777). Like paradigmatic pluralism, the pragmatist worldview embraces a variety of ideas and approaches while acknowledging the significance of both subjective and objective knowledge.

A pragmatist worldview framed this mixed methods embedded case study. Such a paradigm attempts to “fit together the insights provided by qualitative and quantitative research into a workable solution” (Johnson & Onwuegbuzie, 2004). Pragmatism emphasizes that knowledge is created through reflection and experience, and is therefore

the result of inductive and deductive reasoning (Bazeley, 2013). Following this framework, this study employed data collection and analyses methods that worked together in order to help the researcher gain a deeper knowledge of how students perceive their engagement when learning German with technology (Creswell & Plano-Clark, 2011). Combining multiple research methods significantly enhanced this study by creating an opportunity to explore “similarities and disagreements in data generated from alternate paradigms” (Greene, Caracelli, & Graham, 1989).

Research Design

This study utilized a mixed methods embedded case study design. The researcher collected and analyzed different forms of data focusing on the central phenomenon of student engagement in German class. Data were concurrently collected and analysis procedures sought to answer different research inquiries. After the separate qualitative and quantitative data analysis, the findings were brought together to address the mixed methods inquiry (Onwuegbuzie & Johnson, 2006). An embedded design was chosen for this study with the intent of developing an “overall composite” view and gaining a better understanding of the research problem (Creswell, 2009). To achieve this goal, primary emphasis was placed on the qualitative data, while the embedded quantitative data played a secondary, supportive role in the overall design (Creswell & Plano-Clark, 2011). A visual model of data procedures and products is presented in Figure 1.



Preliminary-data was collected in the spring of 2012 in form of a pilot study. This served to inform the development of the semi-structured interview protocol and stimulated recall process. The main data sets for the study were gathered in a “sandwich” sequence over the course of the 2012/2013 school year. The adapted MSLQ pre-test was administered at the beginning and end of the school year. Meanwhile, the primary qualitative data was collected at six points throughout the year. Stimulated recall sessions comprised the first five qualitative data collection points, followed up with a semi-structured interview at then end of the year. Following the data collection phase, data were analyzed using typology development. This integrative analytical strategy is especially suited for studies seeking to expand or develop understanding (Caracelli & Greene, 1993).

Challenges and Issues

Certain challenges and issues characterize each research design. As in any model of mixed methods research, the amount of experience the researcher has in either area can be a challenge. However, embedded case study can be “logistically more manageable” for beginning researchers “because one method requires less data than the other method” (Creswell & Plano-Clark, 2007, p. 70). Though using supplemental data can enhance study design, researchers are challenged with the task of explaining the purpose of each form or data. In this study, qualitative data was collected to represent students’ perceptions of engagement and the role technology played during language learning. Though the data was descriptive of the student experience, it was collected from a subset of ten participants and could not sufficiently illustrate how and to which extent technology impacted student engagement. Therefore, quantitative data was embedded

within this case study as a means for developing a more comprehensive understanding of the case at hand.

Characteristics of the Design

There are four defining characteristics of mixed methods research models (Creswell & Plano-Clark, 2011). The first characteristic focuses on the design of the study, which can be either structured from the beginning or emerge while the study is underway. The second characteristic addresses how the researcher selects the design model, using either a typology or dynamic-based approach. The third includes the study having a congruent design model and research questions. Finally, mixed methods studies must articulate the reason for mixing methods (Creswell & Plano-Clark, 2011).

The present mixed methods embedded case study encompassed each of these principles. From the beginning of the study, the design approach was structured with a detailed plan of how and when both forms of data would be collected. As a novice researcher, it was useful to take a typology approach when choosing the design model for this study. By selecting a previously defined design model, the researcher was better able to “anticipate and resolve challenging issues” (Creswell & Plano-Clark, 2011, p. 60).

An embedded design model prescribes not only two forms of data, but also separate research questions. Qualitative data collection methods were utilized to address the primary question of exploring student perceptions of their engagement in technology integration in German class. To gain further insight into how technology may relate to engagement and motivation, a pre- and post- quantitative questionnaire was administered. In accordance with the final principle of mixed methods research, qualitative and quantitative methodologies were incorporated in this study for the purpose of

complementarity (Greene et al., 1989; Bryman, 2006). In this case, a quantitative method was included to support the primary, qualitative data.

There are three influential aspects to consider when planning and conducting a mixed methods design study. These include addressing the timing, weighing and mixing of data (Creswell, 2009; Creswell & Plano-Clark, 2007). The timing of this study spanned the spring of 2012 to the spring semester of 2013. The data were concurrently gathered within this time frame. Quantitative data were collected at the beginning and end of the school year, while the qualitative data were gathered systematically throughout the year. This study was designed with more weight placed on the descriptive nature of the qualitative data with an intended audience of teachers, curriculum leaders and administration. Data mixing was the final aspect to consider in planning a mixed methods design study. In this study, all forms of data were kept separate during collection and analysis. Once the qualitative and quantitative questions were addressed, the findings for each were compared during interpretation to specifically address the mixed methods research inquiry.

Target Population and Sample











The target population of this case study was beginning level language students who had immediate access to technology. The sample consisted of 8th grade world language students attending Maze Middle School. Of the 233 students enrolled in World Language for the 2012-2013 school year, forty-one of them registered for 8th grade German. (One student transferred after the 1st quarter.) This case and sample were purposefully chosen based on the regular and effective use of technology in German class and the German teacher's high efficacy with using technology and TPACK (Koehler &

Mishra, 2009). Though all 8th grade students enrolled in world language at Maze Middle School had access to technology, the German teacher (and researcher) was the only language teacher to replace all traditional tests with technology-integrated task-based assessments. This highlighted the unique role of technology in the German language classroom.

Before the school year began, an informed consent letter was mailed to each incoming 8th grade German student. This letter sought to inform students and their guardians of the research study and explained that participation was completely voluntary. The letter also emphasized that opting to not participate would not result in negative consequences for the student. All forty students submitted the appropriate consent form signed by their parent or guardian. Each student signed an assent to participate form and was again reminded that participation was completely voluntary. For the main sample of students (n=40), participation was congruent with every day procedures in German class, in addition to the completion of the online questionnaire at the beginning and end of the year.

Purposeful sampling with maximum variation was used to select the subset of ten participants (from the initial n=40) to participate in the stimulated-recall and semi-structured interview procedures. Maximum variation sampling was employed to represent a variety of learning abilities and perspectives. To ensure a wide variety of participants were selected for the subset, students (on paper) were divided into low, middle and high achieving groups. These groups were based on achievement levels from their 7th grade year. From each of the three groups, four names were randomly selected and then invited to participate in the qualitative component of the study. Out of the twelve, ten students

(five boys and five girls) agreed. Table 1 presents an overview of the ten participants and descriptions of the achievement groups used to achieve maximum variation.

<i>Table 1. Participants and Achievement Groups for Maximum Variation</i>			
Participants		Age at Beginning of 8th Grade	Achievement Level
	George	13	Low: Students are able to somewhat communicate ideas, but do not demonstrate proficiency with language and grammar structures.
	Bob	13	
	Emma	13	
	Leo	13	Middle: Students are able to communicate ideas more clearly and with some proficiency of language and grammar structures.
	Sonja	13	
	Marian	13	
	Heidi	13	
	Rachel	13	High: Students were able to successfully and consistently communicate ideas with proficiency of language and grammar structures.
	Will	13	
	Jim	13	

Qualitative Phase

Qualitative Design

The qualitative component in this research was framed as a case study. The rationale for this design variant was to gain deeper understanding of student engagement and technology integration by examining the students in an 8th grade German class. The researcher played a primary role as both an instrument in qualitative data collection and

as the teacher of the students presented in this case. Data were generated from stimulated-recall sessions, journal entries and semi-structured interviews. Using an inductive approach, the researcher explored the detailed descriptions of students' experiences with technology in German class.

Data Collection

The qualitative portion included multiple sources and procedures for data collection. The initial form of qualitative data was a pilot study conducted during the spring of the 2012 school year. Data gleaned from the pilot interviews highlighted the difficulty participants had when trying to describe critical thinking. To provide clarity, students were prompted to consider critical thinking in terms of problem solving and time management. This pilot was intended to prepare the researcher for conducting the qualitative portion of the future mixed methods study. Throughout the following school year, the main qualitative data were gathered from journal reflections, stimulated recall sessions, and semi-structured interviews. Journal reflections were digitally stored and all sessions and interviews were audio recorded for later transcription.

Throughout the 2012/2013 academic year, students completed five chapter assessments. After each assessment, all students were given reflective questions to answer in a journal entry. For a list of the journal reflection questions, see Appendix A. The subset participants then completed stimulated recall sessions. These sessions took place at their convenience before or after school and usually lasted about fifteen minutes. During these sessions, the researcher and participants discussed the student's recently completed technology-based assessment. The project served as a discussion prompt for the student to recall the thought processes and decisions that went into completing the

summative assessment (Gass & Mackey, 2000). The recall sessions began with an introductory prompt that is located in Appendix B. Students then explained the content and purpose of the assessment while highlighting important details and decisions along the way.

At the end of the year, all ten participants scheduled a final interview with the teacher-researcher. The interview also took place in the German classroom before or after school according to the preference of the participant and lasted closer to thirty minutes. During the interview, students were asked nine questions regarding how they feel technology impacted their learning, both in German class and in general. The protocol for the semi-structured interview can be found in Appendix C.

Data Analysis

The techniques used to analyze the qualitative data involved categorically aggregating data and searching for thematic patterns (Stake, 1995). After all transcripts from the recall sessions and semi-structured interviews were transcribed verbatim, they were coded along with the journal entries and observer notes using qualitative software, MAXQDA. The initial phase of coding was identifying the descriptive, emergent themes. The next phase, axial or analytical coding, involved organizing the initial codes into natural groupings (Merriam, 2009). The final phase focused on refinement and interpretation of categories. This phase was critical in the analysis in order to “develop more analytical categories or clusters” (Bazeley, 2013, p. 126). The process began by open coding the entire qualitative data set and later progressed to a more concentrated focus on identifying themes and patterns within the generated categories. For extensive

analysis, qualitative data were coded exhaustively until evidence emerged that defined the developed typologies of the qualitative data.

Credibility

Through holistic interpretation, the qualitative researcher provided credible interpretation of the participants' reality. As the primary data collection instrument, the researcher directly interpreted the participants' experiences through first-hand observations and interactions. The proximity to the participant's actual reality made the researcher's interpretation a reliable representation of that reality (Merriam, 2009). Reliability strategies employed in this mixed methods case study included data source triangulation, member checking, and reflexivity.

Triangulation of data sources was the first strategy used to increase credibility. In utilizing triangulation, different sources of data pertaining to the same phenomenon were collected and compared for consistency in trends (Creswell, 2007, 2005; Merriam, 2009). The present study utilized this strategy by triangulating responses from stimulated-recall sessions, the semi-structured interview and student journals.

Member checking was the second strategy used to enhance credibility. This strategy involved the actual process of checking back with the participant in search of their approval and feedback. This was done in order to ensure the researcher's conclusions accurately represented the participant's experiences and perspectives (Bazeley, 2013). In this study, participants were emailed a summary of the researcher's conclusions and asked to confirm the accuracy of the findings. If participants did not feel the findings were accurate, they were asked to provide feedback on how to resolve the discrepancy.

The final strategy employed to enhance credibility was reflexivity. To be reflexive, researchers must clarify their biases, dispositions and assumptions at the beginning of the study (Creswell, 2007; Merriam, 2009). Reflexivity would benefit readers by helping them better understand how the researcher's personal beliefs and experiences influenced their interpretation and reporting of the data.

Quantitative Phase

Quantitative Design

The present study employed a longitudinal survey design to measure change in motivated strategies for learning over the course of an academic year. This quantitative design variant was selected based on the nature of how data is collected over time (Creswell, 2005). By collecting data over an extended period, the researcher was able to identify if changes occurred in trends across the target population. The researcher played a minor role in this design model, as the adapted MSLQ was the primary instrument for quantitative data collection.

Data Collection

Participants completed an adapted version of the MSLQ in an online format at the beginning and end of the school year. The questionnaires were completed at the beginning of a class period and took ten to fifteen minutes to complete. To account for persuasion and personal bias during the test, another teacher from Maze Middle School administered the questionnaire for both stages.

Instrument

The MSLQ was chosen as the model instrument in this study for its ability to provide sound measurement of motivation and self-regulation (Tseng et al., 2006; Lee et

al., 2010; Moos & Honkomp, 2011). The original questionnaire was adapted for this study so that it was more applicable to the target population of 8th grade German students. This instrument was also selected based upon its established internal consistency and reliability (Pintrich et al., 1993; Duncan & McKeachie, 2005; Artino, 2005).

The original MSLQ was comprised of eighty-one questions that were to be rated on a 7-point Likert scale (1-not true of me, 7 very true or me). Thirty-one items, divided into six subscales, were conceptualized as motivational strategies and the remaining 50 items, divided into nine subscales, were regarded as general learning strategies. When adapting the MSLQ for the present study, the researcher selected six subscales representative of both motivational and learning strategies. The subscales for task value, effort regulation, organization, self-regulation, elaboration and critical thinking were selected based on theories of self-regulation and engagement that are presented in Chapter 2. For each subscale, items were adapted by placing each question within the context of the German classroom. Certain items were excluded from the self-regulation and elaboration subscales because they did not match the context of beginning level language learning. A table of the thirty items on the adapted version and the parallel items from the original instrument can be found in Appendix D. The official questionnaire used in this study is located in Appendix E.

Data Analysis

The quantitative data were analyzed using the statistical software SPSS. The generated descriptive and inferential statistics were then examined with the intent of answering the quantitative research questions. A dependent two-tailed *t*-Test was conducted for the pre- and post-test scores in each domain area. The inferential data was

examined to identify if any significant changes occurred between scores for each student across every domain. Correlational values were also generated and analyzed amongst the subscales for both pre- and post-test questionnaires to further address subscale relationships.

Reliability and Validation

The reliability of a study is utilized to demonstrate the consistency and stability of a measurement procedure (Creswell & Plano-Clark, 2011). The correlational analysis of the test-retest reliability was conducted for each domain area of the adapted MSLQ. This form of reliability was used to determine if the adapted MSLQ pre-and post-tests were significantly correlated ($p < .05$) within each subscale. Table 2 presents the correlations between the pre- and post-test scores within each domain.

<i>Table 2. Pre- and Post-Test Correlations</i>			
Subscale Scores	<i>N</i>	<i>r</i>	Sig.
Task Value	40	0.510	0.001
Effort Regulation	39	0.731	< .001
Elaboration	40	0.403	0.010
Self Regulation	40	0.573	< .001
Critical Thinking	39	0.427	0.007
Organization	38	0.522	0.001

<i>Table 3. Cronbach's Alphas for Adapted MSLQ</i>			
Adapted MSLQ		Number of Questions	Alphas
Task Value	Pre	6	0.65
	Post	6	0.86
Effort Regulation	Pre	4	0.74
	Post	4	0.82
Elaboration	Pre	5	0.71
	Post	5	0.77
Self-Regulation	Pre	6	0.68
	Post	6	0.77
Critical Thinking	Pre	5	0.68
	Post	5	0.69
Organization	Pre	4	0.67
	Post	4	0.65

This study also attempted to demonstrate internal consistency by reporting Cronbach's Alpha for each subscale. This reliability measure was conducted to see if the subscales were able to consistently measure their respective constructs at both points of data collection. Table 3 presents the alpha coefficients for the pre- and post-test scores.

Validity suggests a researcher can "draw meaningful and justifiable inferences from scores about a sample or population." (Creswell, 2005, p. 600) Content validity was taken into account when the instrument was transformed from Pintrich et al.'s original MSLQ. After identifying Pintrich et al.'s survey as a valid measurement of student motivation, the researcher developed an adapted MSLQ for this study. The number of subscales was reduced and some questions were omitted in order to make the questionnaire comprehensible and manageable for 8th grade German students. The six subscales included in the adapted MSLQ were chosen because of their representation of

student engagement as defined by Self-Determination Theory. (Deci et al., 1991) A table comparing the adapted and original MSLQ items can be found in Appendix D. It is important to note that when analyzing the validity of the adapted MSLQ's content, a leading researcher at a midwestern university played a key role in determining the structural additions and omissions.

Mixed Methods

Procedures

The first step of this embedded mixed methods case study was defining the size of the sample. The bounded-system of the German classroom set the parameters for sample size in terms of the quantitative data collection. The target population of 8th grade German students was small enough to include all members in the quantitative sample (n=40). This “consensus study” only requires the reporting of descriptive statistics for the entire target population (Creswell, 2005, p. 359). A smaller qualitative sub-sample was then selected using maximum variation strategies. Though the quantitative data in this study were meant to reinforce the qualitative data, the disparity in sample size made it challenging to compare the two strands of data in a meaningful way (Creswell & Plano-Clark, 2009).

The next step involved the concurrent collection of qualitative and quantitative data. This means there was a one-phase approach for collecting two forms of data within the same time frame. There was an advantage to concurrent data collection, in that the supplemental quantitative strand enhanced the strength of the primary qualitative strand, but the potential remained for discrepancy to occur amongst the two data sets (Creswell & Plano-Clark, 2007). While the concurrent data collection was an efficient approach,

there was a possibility of introducing potential bias while managing both strands of data. The researcher minimized potential bias by gathering all data sets independent of one another within the same time frame.

The mixing of the two forms of data constituted the third step of this study, which included two points of interface (Creswell & Plano-Clark, 2011). The first occurred at the design level when the quantitative data was embedded within the qualitative. During the second point of interface, the data were interpreted separately and analyzed to address the qualitative and quantitative research questions (Creswell & Plano-Clark, 2007). The final step was to visually depict how the data strands were brought together.

Validity Approaches

Qualitative research seeks authenticity and quantitative data seeks validity. When combined, mixed methods research aims for the development of quality inferences by integrating distinct characteristics of both methodologies (Creswell & Plano-Clark, 2007; Greene et al., 1989). To resolve this difference in terminology, the word *legitimation* has been used to describe the role of validity in mixed methods research (Onwuegbuzie & Johnson, 2006). The present study utilized two legitimation strategies to ensure the quality of the procedures and conclusions presented throughout this dissertation. These include weakness minimization legitimation and multiple validities legitimation (Onwuegbuzie & Johnson, 2006).

Weakness minimization legitimation refers to the extent to which two different forms of data are able to successfully compensate for the other's strengths and weaknesses. When the weakness of one data strand is compensated by the strength of the other, the combination leads to high quality meta-inferences (Onwuegbuzie & Johnson,

2006). A case study was chosen for the qualitative phase of this research. The case study approach was useful in gaining in-depth perspectives and descriptions of phenomena, as they are situated in specific contexts. Drawbacks of this approach include influence from the researcher's personal bias, difficulty in making quantitative predictions, and the amount of time needed to collect data (Johnson & Onwuegbuzie, 2004). The quantitative phase of this mixed methods study compensated for these weaknesses in three ways. It provided a data set that was free of researcher bias, offered objective evidence for making sound inferences, and allowed data to be efficiently collected and analyzed (Johnson & Onwuegbuzie, 2004).

Generalizability is a common limitation of case study research (Merriam, 2009). In a mixed methods study the quantitative data gathered from a randomly selected population could compensate for this weakness, as these methods are often intended to produce generalizable findings. Such a relationship does not exist in this study due to the purposeful selection of a relatively small quantitative sample. Considering the size of the quantitative sample ($n=40$), the emergent findings are not meant to be generalized to the larger population of beginning level language learners. Instead, these findings provide insight about the individuals and trends within the bounded-system of this case.

Multiple validities legitimization was the other validation strategy employed in this study. This process established legitimization by considering the validity and reliability techniques conducted for the various phases of the study (Onwuegbuzie & Johnson, 2006). Credibility was illustrated in the qualitative phase of this study by employing data source triangulation, member checking, and reflexivity (Merriam, 2009). In the quantitative phase, reliability and internal consistency were demonstrated by using test-

retest reliability strategies and by reporting Cronbach's Alpha. In addition, content validity was established based on previous research findings that employed the MSLQ and the consultation of a leading educational researcher. By demonstrating validity in both of these areas of data collection, the researcher was able to yield high quality meta-inferences.

Research Permission and Ethical Considerations

Permission to conduct the study was obtained in June of 2012. The IRB approval letter is located in Appendix G. Since the study was situated in a middle school setting, all participants were under the age of eighteen. The young age of participants brought about ethical considerations regarding overall consent, confidentiality, and coercion.

Parental informed consent forms were mailed to participants and their parents before the beginning of the 2012/2013 school year. All forms were signed and returned via mail or by hand. This document communicated with parents the purpose and description of the study, the method of compensation for subset participants, and the student's rights for voluntary participation. This document may be found in Appendix H. Child assent forms were also distributed, signed and returned before taking the pre-test questionnaire at the beginning of the year. This document is located in Appendix I.

Confidentiality was addressed by maintaining anonymity for all participants, the school and the community involved in the study. Student-chosen pseudonyms were used during the stimulated-recall sessions and semi-structured interviews, while numeric coding was used for the pre- and post-test questionnaires. This data was digitally stored with a secured password and will be discarded after five years.

The concern of coercion was handled by clearly explaining to students and parents that participation was completely voluntary. To further reduce the effect of coercion, another teacher from the middle school explained to all participants that there would be no negative consequences for opting out at any point in time of the study.

Role of the Researcher

The researcher's role in this study was many-sided. In addition to conducting the various phases of qualitative and quantitative research, the researcher was also the participants' German teacher. While teaching German for six years at Maze Middle School, the researcher became a part-time doctorate student and began researching the role technology played in language acquisition. While working on a doctorate degree, the researcher completed an online course aimed at training German teachers how to effectively integrate technology in their classrooms. This course marked a major turning point in how the researcher instructed and assessed the students. Eventually, observations of student behavior while using technology in German class lead the researcher to conducting this study.

The researcher played an active and participatory role throughout the qualitative phase of this study. Outside of teaching the participants and grading their technology-based summative assessments, the researcher functioned as the primary instrument for qualitative data collection and analysis. As the participants' German teacher, the researcher was aware of the potential for personal bias within the qualitative component of the study. Therefore, the researcher took measures to counteract these biases to "take a fresh perspective toward the phenomena under examination" (Creswell, 2007, p. 59-60). By bracketing personal bias and assumptions, the researcher used a subjective

approach to inductively analyze themes and codes that emerged from the participant transcripts.

In the quantitative phases of the study, the researcher played a less prominent role. During both phases of quantitative data collection, another teacher administered the pre- and post- online questionnaires. By using SPSS to generate descriptive and inferential statistics, the researcher also played a minor role during the quantitative data analysis. For interpretation of the quantitative data, the researcher used an objective approach and deductive reasoning to examine trends in the numeric data.

The researcher in this study did not overlook the questionable nature of researching in “your own backyard” (Creswell, 2007, p. 122). Though it has been considered risky to conduct such localized research, no risks were taken that negatively affected any of the participants or organizations involved. Participants were not viewed as “human subjects” but rather “co-workers” who contributed to the researcher’s mission of understanding the student experience of language learning and technology integration (Zeni, 2001, p. 3). In fact, participants benefitted while taking part in the study by making academic use of their laptops and by developing new technology skills. The nature of teacher-student interactions required the researcher to maintain ethical composure while teaching and collecting data. The researcher employed a variety of validation strategies to manage issues associated with backyard research and to ensure accurate and insightful representation of participants’ perspectives.

CHAPTER 4

QUALITATIVE FINDINGS

Through a series of stimulated recall sessions and semi-structured interviews, ten 8th grade student participants described the language learning experience with technology in their beginning level German course. By discussing their technology-based assessments, participants provided the researcher with insights regarding their perceptions of engagement and their overall experience of using technology to learn the German. The four major themes to emerge from the qualitative data collection procedures were autonomy, motivation, effort, and cognition. Table 4 illustrates the codes, concepts and themes that emerged through qualitative data analysis.

Table 4. Qualitative Codes and Themes									
CODES	required	ownership	fun	make better	pride	diligence	organization	content	projects
	optional	creativity	good grades	appearance	regard for teacher	problem solving	prior knowledge	structure	tests
	personalize	choice	presentation	music	efficacy	focus	resources	metacognition	boring
	creative freedom	personal expression	technology tools	bells & whistles		technology issues	proof reading	critical thinking	stress
	choice	enjoyment		pictures		mechanics	task management	recall	other classes
	personality	time spent outside of class		look good			time management	new skill	monitor
	favorites			elaboration				significance	more time
	details							nemonic devices	
CONCEPTS	Personalization	Intrinsic	Extrinsic	Aesthetic Quality	Affective	Hard Work	Regulation	Engagement	Assessment
THEMES	Autonomy	Motivation		Effort			Cognition		

Autonomy

Autonomy is defined as one's ability to make his or her own decisions. In this study, autonomy played an important role in how students took advantage of personalizing the content of their summative projects. Each of the five projects discussed during the recall sessions had a specific rubric and explanation of the required elements.

Using their technology resources, students added extra focus and creativity in both the required and optional elements for each project.

The first technology project involved students creating a fashion podcast. Every student's picture was taken in front of a green screen and then the images were emailed to students. In order to remove the background and dress up the images with clothes from the Internet, students were taught how to use the Alpha function, a tool inside of Apple's Keynote and Pages applications. Students were required to dress up their models with at least four different items of clothing and to write detailed descriptions about each model. The clothing was required, but students were allowed to design the models and select which items of clothing to include.



Instead of putting his face on a model's body, or selecting clothes to put on his own picture, Will put his face on an image of a \$100,000 bill. Even though he admitted that "there wasn't much to describe" within the image, Will chose the picture because he and his father had visited the national mint the previous summer and had seen the original bill in person. A screenshot of this image is located in Figure 2. Will explained that technology "lets you be more personal. You can add something to a project which has significance to you." He added, "it helps the creative thinking process a lot more because you can use things and bits in your own life." Heidi felt it was important to reflect her

personality in her work and went beyond the requirements when decorating her own picture as a model. She reported that her favorite passtime activity of reading lead her to put a book in her model's hand. She noted, "It fits my personality very well." Rachel also personalized her fashion podcast. Figure 3 presents a screenshot of Rachel's personalized model. She explained the items she selected for one of her models commenting, "I got a shirt from the Internet and a belt and a tie and put them together and then I did lots of these musical instruments in the background because I really like

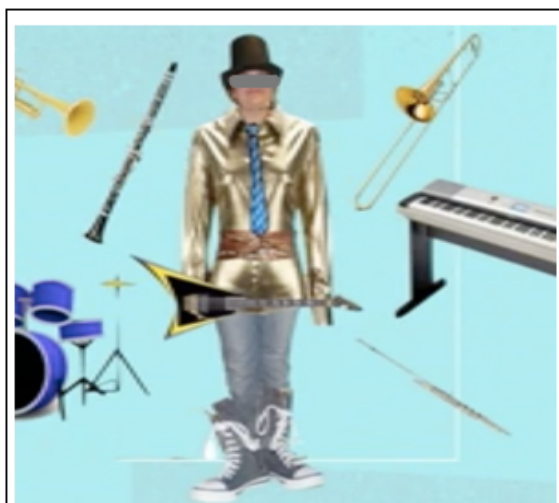


Figure 3. Rachel's fashion podcast model. This figure illustrates how Rachel showed her personality by adding images to represent her love for music. (Rachel's eyes have been covered for the sake of anonymity.)

music." When asked about the extra details in her background, Rachel responded, "Because I really like music, I thought I would show off my musicality." Marian also utilized of the opportunity to personalize her models. She described how she put her own face on a famous pop star's body. When asked about this decision, Marian commented, "she is obviously one of my favorite singers!"

Marian later commented that personalizing her projects lets the student "describe who they are," which she deemed to be "important." Students became engaged with creating their fashion podcasts because of the individual choices they were allowed to make regarding the content of the project.

For the second summative assessment, students used Prezi (online presentation software) to guide the class on a digital tour of their dream homes. This project required

the tour to include at least four rooms with four pieces of furniture in each room. Some students selected images of rooms directly from Google Images, while others opted for designing their own rooms. All students were given freedom to choose which rooms to include and how to decorate or design them.

Sonja selected a home from the Internet and opted for designing each of the rooms. She began by looking for images of rooms on Google but “didn’t find any that really fit my personality.” Sonja added that she “really wanted to make my own so it could represent me and how I feel.” Rachel admitted that personalizing her dream house “was really fun.” She added, “Once I figured out what I was doing, I thought it was fun to be able to choose what you wanted to do and make it work. You could show off who you were personally and what kind of stuff you liked because it’s *your* dream house.” Will also commented, “I really like tropical weather and water so I chose an underwater house in Fiji. I loved that we could pick our own houses and that we didn’t have a boring house template.” Marian noted that she personalized each room in her dream house to avoid being “basic and boring.” She stated, “I want you to notice as we go along the different themes I chose for each room, like one will have glitter, one will be neon and pretty stuff like that.” When asked about her glitter themed room, Marian explained, “I like glitter and I love dance costumes that have glitter. I am so excited by it. There is even a song called *Glitter*.” Overall, Marian’s themes represented her love for dance and made her project “full of pizzazz.” Making autonomous decisions about their dream homes connected students with their work because they were free to personalize it however they wanted.

The third project involved students writing a short story about a party. The story was required to include an invitation, detailing the date and preparation requirements, providing excuses for why guests could not attend, and an explanation of the gifts from those who did attend. The students developed and illustrated their stories as comic strips using the ToonDoo website. All other details of the story were up to the creative freedom of the students.

Rachel appreciated that students could personalize the extra details of their stories. She pointed out that as an audience member “you didn’t have to sit through twenty people having the same exact project, because everyone’s was different.” She personalized her own story by basing the characters off of figures from her favorite movies, which were *Annie*, *Beauty and the Beast*, *Cinderella*, and *The Little Mermaid*. Rachel explained, “I don’t want it to be like everybody else’s. It shows off my personality, even if it’s kind of weird.” Like Rachel, Heidi took a unique approach to personalizing her story. Unlike most students who detailed birthday or holiday parties, Heidi personalized her story by deciding to write about a “micro-party,” with the main character being a “microbiologist.” When asked about her choices, Heidi claimed it was due to her “medical science fascination.” George personalized his ToonDoo project by writing a story about his own birthday, including his sister as a character. When asked about this choice, he responded, “Well, if I was going to throw a birthday party, I would have to have my sister in it because she was born on the same day as me.” He pointed out that he likes “to mess with her” so in the story his character gave the sister a “dumb Barbie.” George also made his story unique in the way he utilized the extra tools and props in ToonDoo. He explained that he “had to customize” the background by adding

more details because “in order to have a party you need music and to make the place look different.” The students were able to use technology in this project to make individual decisions regarding the content of their stories, which reflected their unique personalities.

Students created movie trailers using the iMovie application for their fourth summative project. Their movie trailers could be based on any school-appropriate movie, game, or TV show. The requirements for the project included a script of 12 lines, demonstrating separable pre-fix verbs, the subordinating conjunction *weil*, and a description of the movie using appropriate and descriptive vocabulary. When given the autonomy to decide amongst a variety of elements, these participants expressed the importance of being able to select the details of their own movie trailers.

Will explained how he had seen the popular movie *Anchor Man* for the first time a few months prior, stating “it was a really funny movie and I just really liked it.” As he created the trailer for this movie, he felt it was important to include the “Jazz Flute” scene. Even though it took additional time to add video clips into his movie trailer, he did so because he “wanted to make the project better.” Will stated, “it is a test but we get to be free with it,” adding “we get to pick our movie, we get to do our own sentences, we get to do our own pictures.” Heidi felt she enhanced her project by adding music from the movie *Up* and even purchased the theme song from iTunes with her own resources. By taking images from the movie and arranging them to follow along with the music, she visually represented the song’s lyrics. When asked if purchasing the song for the movie trailer was a worthwhile investment, she said it was because adding music “generally makes it better.” In her journal entry for this project Heidi wrote, “I liked this project because I could choose what music and movie I wanted to do, and whether or not I

wanted special effects. This made me happy, as I could choose what to do, making it more of my project.” For his movie trailer Bob chose “The Hunger Games” and explained his favorite part of the entire project was “picking pictures because I could



choose whatever pictures I wanted and I was free.” Having autonomy over the content of this project allowed students to personalize it and make it their own.

For the fifth project, students created digital posters using the Glogster website. The purpose of the poster was to explain the dative prepositions and demonstrate use

of the comparative and superlative forms. The only requirements were for students to correctly use each preposition in a sentence and provide at least one example each of the other languages structures. Otherwise, students were free to develop the content of their posters using details such as hobbies or interests to help demonstrate the meaning and proficiency.

When discussing his digital poster, George indicated he enjoyed creating his own content. He pointed out his “best” sentence and explained that it was about Dwayne Wade. The sentence read “*Dwayne Wade fliegt von dem Badezimmer zur Küche.*” George noted that this was his favorite basketball player and that his sentence made sense because “you usually have to use the restroom after being in the kitchen.” He highlighted his second best sentence “*Beyoncé kommt aus der Stadt, Houston*” and explained that Beyoncé was his favorite pop star and that he included her in his projects whenever he

could. Sonja personalized her poster by writing sentences about herself and things she liked. When asked which sentence was her favorite, Sonja said, “The one about my pug was my favorite because I love my pug and I put in a picture of her.” Figure 4 presents a screenshot of Sonja’s preposition poster. Leo noted the personal touches he put into his digital poster, including the sentence *Ich esse nichts ausser dem Cheeseburger*. He explained this sentence meant he only eats the cheeseburger because it is his “favorite food.” When asked about personalizing his project, Leo commented, “I just wanted to make it my own and put personal kind of touch on it.” In her digital poster, Marian tried to personalize every sentence she could. An illustration of this is located in Figure 5. Her favorite sentence declared that Marian was more athletic than Gabby Douglas, an Olympic gymnast. About this sentence Marian said, “I just chose that for fun” and about including Gabby Douglas she stated, “I love her! She is so gorgeous.” She pointed out two other sentences that both had to do with dancing and translated “I like dancing the most” and “After school I go to dance.” Regarding these sentences, Marian explained, “I’ve been dancing my entire life so I



Figure 5. Screenshot of Marian's digital poster. This figure illustrates how Marian included meaningful information to help demonstrate her use of dative prepositions.

chose to include that, too.” By allowing students to be autonomous with their poster choices, they were able to express ideas that were meaningful and significant in their lives.

Overall, students often discussed getting the opportunity to utilize their creative freedom to make projects uniquely their own. This freedom engaged students in their learning and fostered creative expression throughout the five assessments. Emma explained that working with technology in German class gave students “freedom to use our creative minds.” Will similarly believed that creative freedom “lets you be more artistic and way more in control because you could control the dialogue, the illustrations and the storyline.” Jim also commented that his favorite part of the assessments was “getting sent off on our own to do our own thing.” When asked if technology impacted her creativity, Rachel responded: “There are just so many tools on every single program on the computer, not even counting the colors and text and fonts and stuff which is really cool as it is, but then you get into making shapes and using, getting different backgrounds and finding different pictures from different websites and dragging it all over the place and you learn. There is just so much on the computer you can do.”

Allowing students to be autonomous and make choices regarding their projects, created a stronger bond between the students and their work. By personalizing the content, students’ projects became more meaningful and motivating.

Motivation

Motivation emerged as a common theme when participants discussed their summative projects and the decisions they made while completing these assessments. Examples were provided of both intrinsic and extrinsic motivation relating to using

laptops for German projects. Students' descriptions of what motivated them fit into four categories: ownership, enjoyment, presenting to others, and getting good grades.

According to participant input, students were intrinsically motivated when they

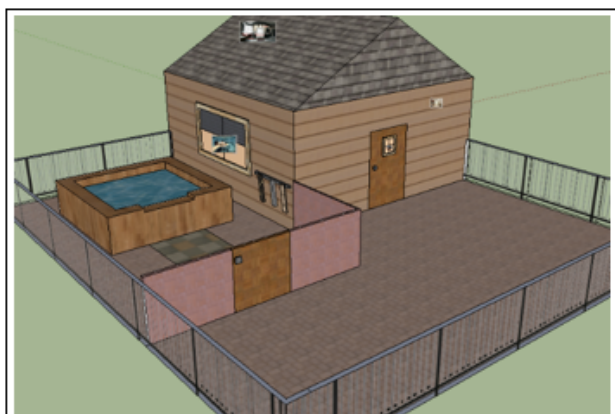


Figure 6. Leo's SketchUp dream house. This figure illustrates how Leo went above and beyond to personalize his dream house by designing it himself.

felt a sense of ownership for their work. In his journal entry about the dream house project, Leo thought getting to “build my own dream house” was motivating. Unlike most of his classmates, Leo designed his house from scratch, utilizing a different application called SketchUp. Figure 6

presents a screenshot of Leo's dream house. Regarding his choice, Leo commented, “you got to really, really think about how *your* house is going to look instead of just going to the Internet and settling with whatever you find.” Jim explained that he was more motivated during his iMovie project, stating, “I felt that it was more of my work, and I worked harder to make it better for that reason.” He was motivated by the “open-ended” nature of technology projects in German class and “worked hard” because he wanted to push the limits and “go where I could and show off my work.” Rachel reported that she chose to design her dream house “because I thought it would be more fun and you can make it look like your own instead of using someone else's ideas.” Similarly, Will described the opportunity to “make your own test” as being important because “you don't just sit down and write or fill in bubbles...it kind of bumps up the interest level of it.” Emma emphasized that she “worked really hard” on her technology projects because they

“were my work.” Feeling a sense of ownership motivated students to try harder and increased the appeal of working on their assessments.

Participants reported being motivated to spend time on their summative work when they found enjoyment in using technology. Before it was even underway, Emma demonstrated motivation regarding her first project in her comment, “When I heard about the project I really wanted to do it and could not wait to get it started.” For her ToonDoo story, Emma explained enjoying the project so much that “I went home and created my book. I finished it even though we still had three more days left to do it.” Bob commented that he did not usually spend much time on his computer, but when he used it for his German projects, he felt like he was “more focused” because he enjoyed what he was doing. He claimed that using technology during his dream house project “motivated me because I actually wanted to get more on my laptop...I just like doing it.” When asked which type of assessment she spends more time preparing for, Heidi admitted that she spends more time preparing for projects because “it’s less pressure, more fun, more creative and you just like it more.” George regarded technology projects as “fun” and enjoyed working on them in German. But, when he earned an in-school suspension, he lost the privilege of working with his computer. In order to return to German class and work on his project, he was instructed to complete three missing assignments for another class. He chose to spend his time wisely and completed his missing assignments. When asked about this choice, George explained he wanted to return to German class “so I could work on my computer project.” These examples show that when students enjoy what they are doing, their motivation to work on learning tasks increased.

From the fashion show project to the final digital poster project, participants found the opportunity to present language and technology talents as being a source of motivation. Jim discussed how his presentations were a source of motivation, explaining how his goal was to “show off my work, and to show my other classmates what I’ve done.” Regarding watching others’ presentations Jim noted, “I can learn from them how to do stuff better in the future.” Sonja liked presenting her projects in German class and commented, “I like presenting just to show what I’ve done and if I am really proud of what I did, I really like presenting it.” She further explained presenting her work helped her learning “because if I know I have to present something, it makes me work harder to make it better.” Rachel said she was motivated to do her best because “you want people to be able to understand it” and think it is “really cool.” Similarly, Will felt that presenting his work was motivating and important because it gave him a “drive to do it well” and “get it right.” According to Will, presenting projects was a chance to “prove what I can do.” In his final interview Will stated, “I think the presentation part really makes you pay attention a lot more than if just the teacher saw it...you go through all the details again so you make a good impression on the class...” Students were motivated by the chance to present their work, as this offered them the opportunity to show what they could produce and do.

While students felt that doing their best was important, they also described their motivation in terms of wanting to get good grades. Marian said “I usually try my best on my projects because I always want to get a good grade.” Will explained how he “loved” the dream house project and he “wanted it to be A++ material.” He added that in general, “I am always motivated to do well on these projects.” George declared “getting a good

grade” as his motivation for each project and when asked about this he commented, “Who doesn’t want to get a good grade on something that is fun?” Bob was also motivated to get a good grade on his iMovie project, stating, “I really wanted to get into the project and I tried my best to really get into it.” He further explained that he strived to create a good project because “I want to have a good grade.” Whether as a way for students to feel a sense of accomplishment or as a reward for meeting their academic expectations, the desire to achieve good grades was a source of extrinsic motivation.

Effort

Student participants described their effort as they discussed the reasons behind the decisions they made while working on summative assessments in German class. Participant input indicated that students experienced increased levels of effort when completing their technology-based projects. Within the theme of effort, participants referred to aesthetic intention, emotional effort, and diligence.

Whether taking the time to strategically organize the visual layout of their work or by taking the extra step of adding music to a project, students invested concerted effort to improve the aesthetic quality and effectiveness of their projects. Bob explained how he added “a bunch of transitions” to his movie trailer project because he wanted to “make it look cooler...I just wanted to make it look good...” He reported adding a song to the fashion podcast because he wanted to give it more “Pop!” Rachael’s use of color in her ToonDoo project was also an extra effort to convey aesthetic quality. The story, which was about a girl who couldn’t have a birthday party, was produced in black and white to express how “she’s sad she can’t have her party.” But when the girl eventually received a surprise birthday party, Rachel made the final illustration in color “because she’s really

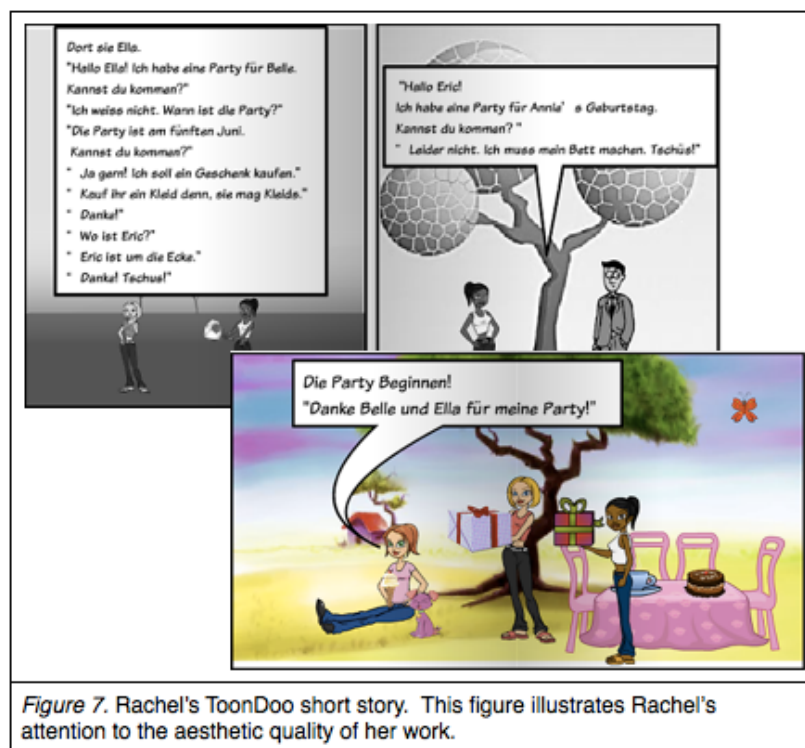


Figure 7. Rachel's ToonDoo short story. This figure illustrates Rachel's attention to the aesthetic quality of her work.

happy she got a party.” Figure 7 presents two screenshots of Rachel’s ToonDoo project. Discussing his Glogster project, Leo pointed out that it he had to “pick pictures to make it look good.” He

added that it was also important for the images to “show what the sentences are talking about.” Later he commented, “I wanted to make it look good and professional instead of just kind of throwing things together.” Heidi emphasized the significance of making her projects look good in terms of having good grammar. She commented, “Well, if you want your project to look good and be creative, you have to have good grammar, and reiterated, “If you don’t have good grammar, it’s not going to look good.” By putting forth extra effort, participants were able to enhance the aesthetic quality and content of their summative assessments.

In addition to aesthetic intention, where students focused on the appearance of their work, participants described their effort in terms of emotional constructs. Descriptions of emotional effort included being proud of their work and the regard the student had for their teacher. When Emma discussed how she was more proud of her

projects than of her tests, she stated “I like the results better and tests are just knowledge of my information.” She added, “I get to add my own spin to it...I constructed the sentences on my own and I did it without training wheels. Tests are just, you know the facts and are tested on them.” Jim explained how he took more pride in his German projects when he felt they were “successful” and described it as “gratifying” to see his completed work. Rachel felt proud of her technology projects “because there are more components to what you are doing.

You’re proud because you put in the work.

You’re proud because you got a good grade or because you knew the stuff you’ve learned.” Sonja said she was proud of her iMovie project and explained “I was kind of scared at the beginning

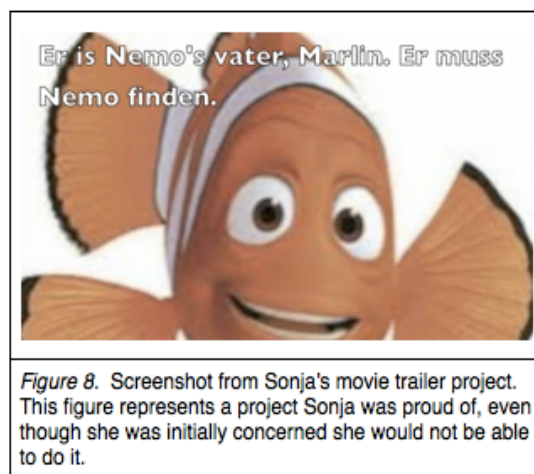


Figure 8. Screenshot from Sonja's movie trailer project. This figure represents a project Sonja was proud of, even though she was initially concerned she would not be able to do it.

because I didn't think I would be able to do it or I would mess it up a lot. But I actually did really good on it and I like it.” Figure 8 presents a screenshot from Sonja’s movie trailer project. Participants experienced a greater sense of pride when they put forth effort towards creating and completing their technology-based assessments.

The role of the student-teacher relationship also emerged as an affective factor in putting forth effort. Students invested more time and effort because they had a high regard for the teacher. Will described his extra effort in creating a high quality product so as to avoid feeling as though he “disappointed” his teacher and added “I always feel bad whenever I do a sloppy or insufficient job.” Will demonstrated how he takes into account the teacher’s efforts, saying how he noticed that the teacher “put so much effort

into it, I might as well put equal or more effort into it.” Like Will, Leo discussed putting forth more effort because of his teacher. He explained that he is motivated to put forth more effort because the teacher was “enthusiastic and cares how we perform.” Leo later reported putting forth more effort “because the projects [the teacher] chooses are super fun to work on.” Rachel gave more effort because she “wanted to show [the teacher] what I had learned and that I learned how to use it in real sentences without specific sentences laid out for me.” In her first journal entry Emma explained she put forth extra effort because she “wanted to impress [the teacher].” These examples demonstrate how students were motivated to put forth extra effort based on their regard for the teacher and their perceptions of the teacher’s exerted effort.

Participants also demonstrated effort in their diligence and problem solving skills. This theme included some of the technical difficulties students had to overcome in order to complete their summative projects. Leo explained that working with technology can leave you frustrated, commenting that “sometimes you have to work with it... be able to work around it and...cooperate with it.” When one of the websites was not working correctly, Marian was diligent and resolved the issue, without asking the teacher for help. She detailed,

“I took screenshots of the different pictures that would not work on the website. After I took the screenshots, I went back to something I’ve already used before, Keynote. Then I just put the pictures on each slide with the sentences and then came up with a Keynote for my project.”

Sonja discussed how tasking it was to digitally cut out all the furniture she used in her dream house project and noted, “I used Alpha and it’s just really hard to get them all

done. It took more time than I expected but that's okay with me because I really liked doing it and it was really fun." Emma demonstrated diligence and patience when she worked on her digital poster. She said, "it got somewhat stressful but then I figured out a way that [the images] could be uploading while I was still working on my project which took some time but, you know, I eventually figured it out." Talking about using Prezi for the first time, Rachel explained,

"At first it was kind of frustrating because I didn't fully understand it, but then I figured out how to do it and it was a lot more fun because you figured out how to use the little tools like how to make it colorful or draw stuff on it and then it was really fun and I was really glad we used it."

Even when faced with challenges presented by technology, students continued to demonstrate extra effort to complete their projects.

Participants also demonstrated diligence and effort regarding language mechanics. This was evident in how participants attended to important elements of content, such as grammar and syntax. Emma described spending more of her time focusing on the meaning of dative prepositions and word order than on the overall design and appearance of her digital poster. Because she had access to resources and using her laptop, Emma described having a higher level of expectation for herself, noting, "I should be able to get the right answer." Rachel demonstrated her attention to grammar structures when she stated, "I made sure that I spelled it right and had the right gender of the word since that is one of the main things we are graded on." She also made sure she "correctly switched to the dative preposition version" and that she checked for "the right word order because that's also pretty important." Will exerted extra effort on his word choice and word order

for his preposition poster. He commented “It was kind of stressful because I was worried about if I chose the right word, if I put it in the right place...I had to try my best even though I didn’t get much practice.” These participants were engaged in their learning by investing extra effort towards their language mechanics to help ensure the overall quality of their work.

Cognition

Participants’ descriptions of learning and assessment with technology in German class revealed various themes related to cognitive engagement. Self-regulation and critical thinking were two themes that illustrated active or deep cognitive engagement in the learning tasks. Self-regulation was described in terms of utilizing resources, peer editing and management of tasks and time. The evidence of critical thinking included accessing prior knowledge and reflections on learning with technology.

Students indicated cognitive engagement by describing the resources they utilized and how this helped them when working on their technology-based projects. According to Heidi, using resources “made it so it wasn’t as stressful because you didn’t have to go cold turkey. You could use your notes.” She explained using her resources to double-check her spelling by commenting, “You know you’re correct, if you checked over your homework, notes and such.” Leo felt that technology-based assessments allowed him to use “a lot more resources online” which helped make his projects “a lot more bigger and better.” He described how resources helped with his language mechanics by avoiding “spelling mistakes” and ensuring proper “capitalization, punctuation, and that the verb and all the pieces of the sentence are where they belong.” Sonja explained the significance of using her resources stating, “this is going to sound weird, but in the real

world, like in our jobs, we're going to have resources to be able to look at things and ask questions." Sonja felt like using resources in German was helpful, but "not like cheating." She explained, "In German class, you can't look word order up on Google Translate because that doesn't work. You really have to use your own knowledge." Regarding the use of resources while completing assessments in German class, Rachel commented, "It completely eliminates the stress for me basically because I know that if I do forget something, I can look up and make sure I have it right so that on my project, it is correct and I can get a good grade for it." She added, "I'm not sitting there panicking about whether or not I'm right with what I'm doing. Using resources increased engagement for these participants because it enabled them to monitor the accuracy of their work and improve the overall quality of their products.

Another resource utilized by students was peer editing. Will discussed the value of interacting with his classmates as a resource while working on his projects. He stated that being able to view their projects "isn't copying, it's like a brainstorm to give you better ideas on how to improve your own project." Jim used peer editing to improve his dream house project and explained, "We looked at it together and then corrected any grammar and spelling." When asked why he and his partner looked at it together, Jim replied, "Two sets of eyes are better than one." In a later interview, Jim described peer editing as helpful "because others can catch mistakes that I didn't." Sonja reported that the opportunity to find and fix her mistakes during peer-editing made her "feel better" about her work. She added that sometimes there aren't "a whole bunch of mess-ups," but she makes the same type of mistake multiple times. Sonja described this as "frustrating" and felt like peer editing helped her identify these types of mistakes. George felt that

peer editing was helpful in a similar way. He explained, “If there is anything you don’t know, your peer can teach you more about it.” Marian also described the peer editing as “very beneficial,” stating, “not only would it benefit them...you can learn something too.” She continued to explain that when she learned something while peer editing, she made sure to go back and double-check her own project. The peer editing process fostered cognitive engagement for these participants as they interacted with their work and the work of others in order to find and fix their mistakes.

Participant input indicated cognitive engagement when they discussed the importance of managing the tasks necessary for completing their projects. Marian outlined the steps she took to complete her work when she stated,

“First, we have to make a rough draft of our sentences...after that is written or typed out, we peer check it and make sure it is right...and then after it is corrected you have to go back and fix those mistakes and then you have to write a final draft and have [the teacher] check it...then you can work on the project.”

Marian added that rubrics were “the most helpful” because they helped “you get a good grade.” Heidi also noted that rubrics were helpful in setting the parameters of what she needed to accomplish, stating, “I enjoyed working on [Project #3] because I could do my own thing but still had a rubric to follow.” Bob mentioned using a checklist to “check off all the things I needed to do” when he was organizing his projects and also made use of iCal to record his assignments. He stated, “I liked iCal because then I could use it for my assignment to help me remember and not forget what it was that I did.” Rachel used checklists and rubrics and explained these were helpful “because I can get distracted pretty easily.” She described the guidelines (checklist and rubric) for the ToonDoo as

“very helpful because even after you wrote your script and thought you had everything, you could go back over it and double-check whether or not you had it.” Managing their tasks with things like rubrics and checklists allowed participants to be creative and monitor how much effort needed to be invested to achieve the learning objective.

Cognitive engagement was apparent when participants spoke about managing their time while working on their summative assessments. Bob was able to focus more attention on writing his dream house description when he “saved time” on his project by selecting rooms from the Internet that he liked, as opposed to illustrating the rooms himself. He stated, “I saved time and it made it so I could also make my project better in different ways...I could concentrate more on my vocabulary and placing words.” Leo talked about his ToonDoo story, explaining how he had to “operate” his time and “choreograph it” so that he could manage to work on all the elements of the project and finish by the due date. Leo was so engaged in the project that with more time, he “could have made a full length story.” Jim demonstrated time management and engagement by using his free time during school to work on his ToonDoo project “instead of doing something else like play a game.” Like Jim, Heidi described using her academic free time to work on her German projects. She explained that she “didn’t really need to” work on her digital poster at home because she worked on it “in homeroom and when I had library duties.” She further commented, “I was able to put it together, write the sentences, get the pictures and get it all uploaded without having to work on it after school or at home.” Participants were cognitively engaged during German assessments which was evident in how they managed time when working to complete their projects.

Critical thinking was apparent when participants reflected about the different projects they completed in German class. Will noted that he frequently included new or extra vocabulary words in an effort to not “dumb the sentences down.” He continued, “I don’t want my vocabulary to restrict me in German. I kind of want to go above and beyond on this.” Will further demonstrated critical thinking by describing how projects have particular requirements that must be met, stating “you have to meet certain guidelines and it kind of makes it harder. It makes you think a lot more than other tests because you have to work around the guidelines.” Jim demonstrated critical thinking when he described how using Prezi as a “broader way to use the technology,” adding “it was like complete open space and it was endless, so you could do as much as you wanted.” Jim further commented, “You can pretty much manipulate the technology to do whatever you want.” Emma showed use of critical thinking when she chose to focus more on grammar and less on other project details. She commented, “if I spend more time on my dialogue and make it perfect, it would be better than adding extra details to the background.” This was also evident in her Glogster project when she noted, “I wanted my peers and [the teacher] to focus more on my sentences and what I was talking about...instead of focusing on the background.” Rachel demonstrated critical thinking in her journal entry about the movie trailer project. Though she enjoyed getting to “see everybody’s interests while still learning new words that people put into their projects,” she disliked “that a lot of people only spent time on the movie instead of their sentences.” Participants demonstrated cognitive engagement through their use of critical thinking regarding their technology-based projects in German class.

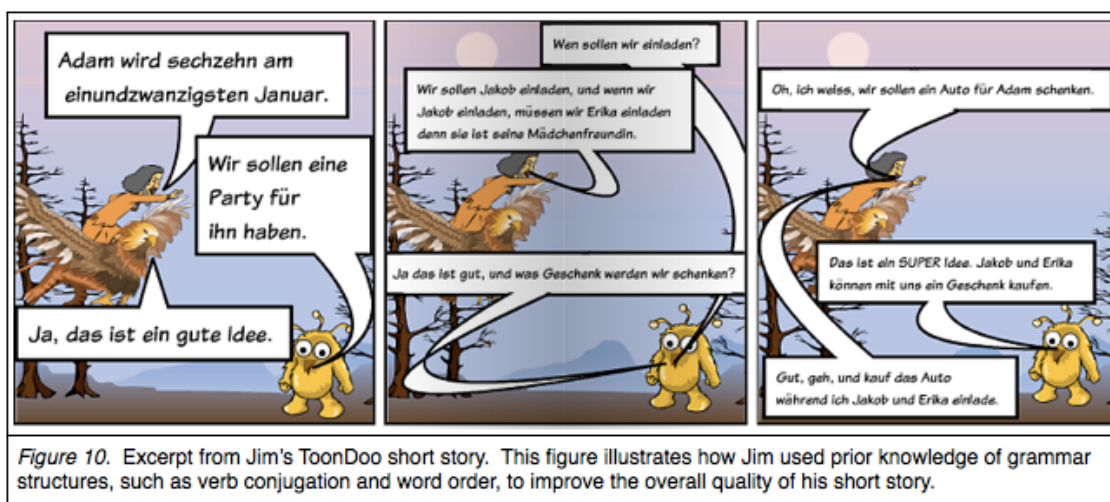
Participants described critical thinking moments when they discussed the role prior knowledge played in enhancing their projects. Rachel explained how she would get



“stuck creatively,” but then remember how she already “learned how to do this so you can transfer the knowledge you learned in previous project...into this.” She added that “with the computer, we keep the information we used from last time,” whereas in other classes, “once you learn something, you’re done with it and then you’re on to a new subject and it has nothing to do with what you learned last week.” Will discussed how his generation “grew up with a lot of technology, like

Gameboy and stuff like that.” He explained how being familiar with technology “helps because I kind of know what more to do.” In terms of language learning, Will explained how you “draw on what you did on one project and you can put it into another project,” and “if it was really good, I should use it again.” Similarly, Heidi described how using something she already knew about as the content of her work made it easier to use new German language structures. Figure 9 contains screenshots of Heidi’s movie trailer project. She explained that she used her favorite movie *Up* in different examples of her work “because its very easy to remember and easy to write.” Heidi’s prior knowledge of iMovie was also beneficial as she pointed out “I’d already made another project with

iMovie” which made it easier for her to use this application in German class. Jim also believed that his prior knowledge of technology benefited his work because he could “use the skills I already know to help me get better at knowing German.” When describing prior knowledge and his ToonDoo project, Jim pointed out that “this assessment was different because instead of only testing us on one area of our knowledge, we were able to use everything we have learned to make the book better.” Figure 10 presents an excerpt of Jim’s short story. Based on these examples, participants understood the significance of prior knowledge and utilized it when they worked on their German projects. Student reflections demonstrate how prior knowledge stemmed not only from formal German instruction, but also from previous use of technology and personal experiences and background knowledge.



The participants’ use of critical thinking was also evident when they compared technology-based assessments to paper and pencil tests in terms of creativity, stress, and engagement. Leo commented that assessments like the ToonDoo project allowed you to “creatively push your mind,” whereas traditional tests require you to “mark only the right answer, A, B, C or D.” Rachel believed that projects were better than tests because “you

get to make yourself a part of it and you get to use your own creativity instead of just answering questions somebody else created.” She added that, in general, technology projects let her be more creative, commenting,

“There’s just so much stuff on the computer you can do and a lot of it we don’t even know and it’s really cool to be able to learn how to do it and then it just gives you more opportunities to do something cool with what you are learning.”

Sonja also felt that “in tests you can’t really be creative because all you do is answer questions.” In contrast, she described technology projects as providing “unlimited things you can do and you can put in what you want.” Pointing out that he has to take tests in most of his classes, George said he liked technology projects better. When asked what he preferred about technology-based assessments, George said it was “deciding what you get to put in the project...because you got to use your own imagination.” According to participant views, technology-based projects increased engagement by giving them more opportunity to be creative.

Participants described traditional assessments as a source of stress. Emma expressed a preference for completing projects because she believed there was less stress involved, explaining that traditional tests made her feel “crowded with facts and stuff.” Specifically, Emma stated, “I like to do projects better because there’s not so much stress. I mean, there’s stress to get it done and get it right, but tests, you have a set time have to do it.” Rachel shared this sentiment, explaining that during traditional tests, sometimes her “brain goes blank and I just freak out.” She added that tests “in every single class are really, really stressful.” Rachel further explained that,

“If you are having a bad day your chances of performing well are not as good as if you have a long time to work on something and you can get more comfortable with the work. You have more time to look over your mistakes and plus it is more fun.”

Like Emma and Rachel, Bob described having a high level of stress when completing tests in comparison to projects. He commented, “In other classes, my stress is really high because then I have to study a lot, working to get that test and on German projects, the stress is reduced because I have more time to study and I can fix my mistake while the project is going on.” Heidi acknowledged that technology projects in German class were also stressful. She explained that even though projects were “a lot of pressure,” she preferred them to tests because “we still do the same skills and it is better in the end, although I do admit, a technology project is hard to post on your fridge.” Participants were able to complete their German assessments with relatively low stress in comparison to completing traditional assessments.

In terms of engagement, participants demonstrated critical thinking as they identified traditional tests as boring and disengaging. George reported that he tried harder on technology projects than on traditional tests “because sometimes tests can be really boring and you want to get done with it faster so you will speed through it.” Bob agreed by explaining that when taking tests, “you don’t really get to focus on what you like to do” and you “don’t have much time to look it back over...you just have to sit there and look at the sheet of paper.” Rachel felt that projects offered more stimulation “than just writing the stuff off the board or taking notes on paper,” adding “it’s more interesting, and I personally learn better when I use it.” When discussing technology

projects and tests, Will commented, “Projects engage a students’ brains more than just regular tests.” He further explained “in order to get a good grade” there were certain elements that needed to be included on projects, but that in general, “you can control the amount of work you put into it. It’s not like you can do that in other classes, but in this class, you can actually control the assessment and what you do.” Participants critically viewed their level of engagement in regards to assessments in German and other classes. When completing tests and technology-based projects, they reported that tests were less engaging than technology-based assessments in German class.

Sub-scale		<i>M</i>	<i>SD</i>	<i>t</i>	<i>N</i>	<i>p</i>
Task Value	Pre	4.3375	0.4160	-0.404	39	0.688
	Post	4.3042	0.5920			
Effort Regulation	Pre	4.2244	0.6277	0.748	38	0.459
	Post	4.2821	0.6791			
Elaboration	Pre	3.8450	0.5291	2.33	39	*0.025
	Post	4.0650	0.5628			
Self Regulation	Pre	3.9000	0.5200	0.742	39	0.463
	Post	3.9583	0.5544			
Critical Thinking	Pre	3.7795	0.5944	1.019	38	0.315
	Post	3.8872	0.6371			
Organization	Pre	3.5197	0.6189	-0.069	37	0.946
	Post	3.5132	0.5897			

Notes: *p<.05

Elaboration was demonstrated when students described or discussed the meaningful content they chose within the parameters of their assigned tasks. These strategies “help students store information into long-term memory by building internal connections between items to be learned” (Pintrich, et al., 1991, p. 20). According to the data, students scored significantly higher on the elaboration subscale at the end of the year. In other words, the students were more aware of their use of elaboration techniques after working on their technology-based summative assessments. These students were provided the chance to be creative and expressive with their own ideas, which allowed them to elaborate their thoughts in more than just words. The use of technology gave students more opportunities to establish the necessary connections that can potentially lead to higher language proficiency.

At the beginning and the end of the study, the task value subscale scored the highest means of the adapted MSLQ. The six questions in this subscale asked if the students felt the skills learned in German class could be useful in other classes, if they felt it was important to understand what they were learning, or if they were interested in learning in German. In the original MSLQ, task value was analyzed in terms of interest, importance, and utility, with the implication that higher scores should lead to more involvement in one’s learning (Pintrich, et al., 1991). The researcher in this study found that students placed more value in tasks that were engaging and meaningful. When students placed high value on what they were learning, they were more motivated and inclined to do their best. By giving students more opportunity to invest their own ideas and effort into what they were learning, the overall value of the task at hand increased as well.

The subscale with the second highest mean for both pre- and post-test subscales was effort regulation. This subscale referred to a student's ability to control their effort and attention when presented with distractions and uninteresting tasks. The questions prompted students to consider laziness or boredom as barriers to coursework completion, asking if they commonly give up if the work gets difficult or unpleasant. This subscale shows how managing effort was a strategic element of academic success because it "signifies goal commitment" and "regulates the continued use of learning strategies" (Pintrich et al., 1991, p. 27). When regulating their effort, students demonstrated a commitment to completing a learning task or objective. By providing students an engaging format to practice and demonstrate language structures, the teacher was better able to compel learners to participate. Even if they were less interested in learning the linguistic structures they were using, the relevant content engaged them. The combination of novel technology and meaningful content was a key component for effort regulation. Students exerted more effort because they were using novel technology to communicate meaningful information.

The subscale of critical thinking involved how students apply prior knowledge to new learning scenarios as a means to problem solve, make decisions or make evaluations with respect to standards of excellence (Pintrich et al., 1991). Students were repeatedly introduced to new learning scenarios, regarding language and technology that required various elements of critical thinking. Each time a new language structure was practiced, students had to critically evaluate the quality and clarity of their communication. For example, when students peer-edited their rough drafts, they were required to try their best to find and fix mistakes. Similarly, when using new technology tools, students had to

familiarize themselves with the tool and figure out how to use it to effectively demonstrate their linguistic ability. Though middle school students were able to use critical thinking in these situations, they may not recognize that they are in fact being critical thinkers. When scoring these questions in the adapted MSLQ, students were asked if they often think about things to decide if they are meaningful, or if they think about alternative ways to complete a German project. This researcher felt that the students may have lacked the self-awareness to recognize and assess their own critical thinking, which may suggest why this was the second lowest domain area for these middle school students.

The lowest means of the six subscales for both the pre-and post-test dealt with organization. Organization was regarded as an “active endeavor” that “results in the learner being closely involved in the task.” These strategies “help the learner select appropriate information and also construct connections among the information to be learned” (Pintrich et al., 1991, p. 21). The general skill of organization helps student self-regulate because they are able to effectively structure their ideas and resources. Within the context of the present study, the low mean scores were likely reflective of the role organization plays in the students’ lives. During middle school, students have a difficult time remaining physically and academically organized and are faced with changing personal and social dynamics. The technology projects that were integrated throughout the year made it easier to select and organize appropriate information, providing them a novel format to present their knowledge.

CHAPTER 6

QUALITATIVE AND QUANTITATIVE COMPARISON

When technology is effectively integrated during the language learning process, student engagement is made apparent in four main areas, autonomy, motivation, effort and cognition. As participants spent time describing their technology-based projects, they indicated that choice and creativity motivated them to put forth more effort and caused them to be more cognitively in tune with the content and quality of their final products. According to the qualitative data, when projects were fun and personally significant, students regulated their learning in hopes of doing well. Verification of the qualitative data was sought by comparing it with the quantitative data to see if and how they supported what students said about their experiences of using technology in German class. By looking at the mean scores for elaboration, task value, effort regulation, critical thinking, organization and self-regulation, it was clear that the high or above average mean score values reflected similar trends in the qualitative data. It was interesting to note that elaboration was the only subscale to experience a statistically significant change between the pre- and post-test scores. Taking both strands of data into consideration helped create a more detailed and comprehensive picture of how student engagement can be maximized in a beginning level language class. Table 6 presents a joint display of the qualitative and quantitative data.

Table 6. Joint Display of Data	
Qualitative Themes	How Qualitative Findings are Supported by Quantitative Data
Quantitative Subscales	
Autonomy	<p>“Technology lets you be more personal. You can add something to a project, which has significance to you. It helps the creative thinking process a lot more because you can use things and bits in your own life.”</p> <p>“I don’t want it to be like everybody else’s. It shows off my personality, even if it’s kind of weird.”</p>
Elaboration	Elaboration had the third highest mean score of ($M=4.07$, $SD=.56$) and was the only subscale to show a significant increase from pre- to post-test with, $t(39)=2.33$, $p=.025$.
Motivation	<p>“I was motivated because I felt that it was more of my work, and I worked harder to make it better for that reason.”</p> <p>“When I heard about the project I really wanted to do it and could not wait to get it started.”</p>
Task Value	Task Value had the highest mean score ($M=4.30$, $SD=.42$).
Effort Regulation	Effort Regulation had the second highest mean score ($M=4.28$, $SD=.68$).

Effort	<p>“I wanted to make it look good and professional instead of just kind of throwing things together.”</p> <p>“I like the results [of projects] better and tests are just knowledge of my information. I get to add my own spin to it...I constructed the sentences on my own and I did it without training wheels.”</p>
Organization	Organization was sixth in the distribution of subscales ($M=3.51$, $SD=.59$).
Critical Thinking	Critical Thinking ranked fifth with an above average mean score ($M=3.89$, $SD=.64$).
Cognition	<p>“This is going to sound weird, but in the real world, like in our jobs, we’re going to have resources to be able to look at things and ask questions...In German class, you can’t look word order up on Google Translate because that doesn’t work. You really have to use your own knowledge.”</p> <p>“I saved time and it made it so I could also make my project better in different ways...I could concentrate more on my vocabulary and placing words.”</p>
Self-Regulation	Self-Regulation ranked fourth in the distribution of subscales ($M=3.96$, $SD=.55$).

Autonomy and Elaboration

Autonomy emerged as a major component of the qualitative data. Throughout all five projects, students highlighted how having the chance to be autonomous impacted their summative assessments. When students described the decisions they made pertaining to the use of technology, they also provided insight as to how the opportunity

for autonomy engaged their learning. This qualitative theme is well supported by the quantitative data surrounding the subscale of elaboration. Though the elaboration subscale did not emerge with the highest mean score ($M=4.07$, $SD=.56$), it was the only domain to show a significant increase from pre- to post-test within the quantitative data, $t(39)=2.33$, $p=.025$. The increase in reported elaboration supports the qualitative theme of autonomy in that these elaboration strategies helped students “integrate and connect new information with prior knowledge” (Pintrich et al., 1991, p. 20).

At the beginning of the year, students connected new content to information that was personally meaningful or relevant to help them better embed their new knowledge in long-term memory. While the beginning projects provided thematic and grammar expectations, the final projects required specific grammar elements but allowed students to decide how and within which contexts they would demonstrate their language proficiency. By the end of the year, students developed larger pools of prior knowledge in the target language structures and vocabulary. This enabled them to use elaboration strategies at an increased level. Higher levels of elaboration are indicative of engagement as students connect new information to their prior knowledge. The significant increase in elaboration supports the qualitative finding that students were more engaged in their summative assessments. This occurred when students were allowed to personalize their learning by selecting meaningful and interesting content as a means of embedding new material in long-term memory.



Figure 11. Screenshot from George's fashion podcast. In this image George greets Superman who responded by commenting on George's dress.

the participants used autonomy to select themes that helped them store information in long-term memory. While George used humor (wearing an old lady's dress and top hat while hanging out with Superman), as a concept to help him develop a description of his model, Heidi used elaboration by personalizing her model to represent her quirky personality. Figures 11 and 12 depict the models George and Heidi created for their fashion show podcasts.

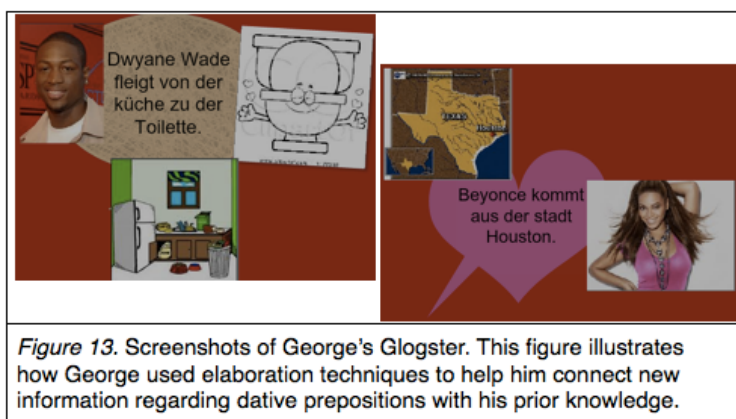
In the language classroom, elaboration strategies were exhibited in the way students personalized their learning content and demonstrated autonomy. George and Heidi demonstrated an increased use of elaboration strategies from the initial fashion show project to the final digital poster project. In the first projects,



Figure 12. Screenshot of Heidi's fashion podcast. This figure illustrates how Heidi represented her personality in the way she dressed her model.

By the final project, participants were able to both connect new material with meaningful information and make connections with prior linguistic knowledge. They selected meaningful content and images, in addition to writing a variety of sentences, in order to convey the meaning and grammar rules of the prepositions. For example, George wrote a sentence about his favorite basketball player flying *from* the kitchen *to*

the toilet, to illustrate the meanings of the words *von* and *zu*. Similarly, he used elaboration to help him remember the meaning of the word *aus*. In doing so, George



constructed a sentence explaining that his favorite musician, Beyonce, comes *from* the city of Houston.

Figure 13 presents a screenshot of George's

preposition poster. Heidi also indicated use of elaboration when she created an overall sea life theme for her poster and tried to represent each dative preposition within this underwater context. For example, to demonstrate her understanding of the German preposition *mit* (with), Heidi wrote “*Die Koralle wohnt mit der Algen,*” or “the coral lives with the algae.” The content of this digital poster was relevant to Heidi and her use of elaboration strategies helped her conceptualize the meaning of the dative prepositions. Heidi also



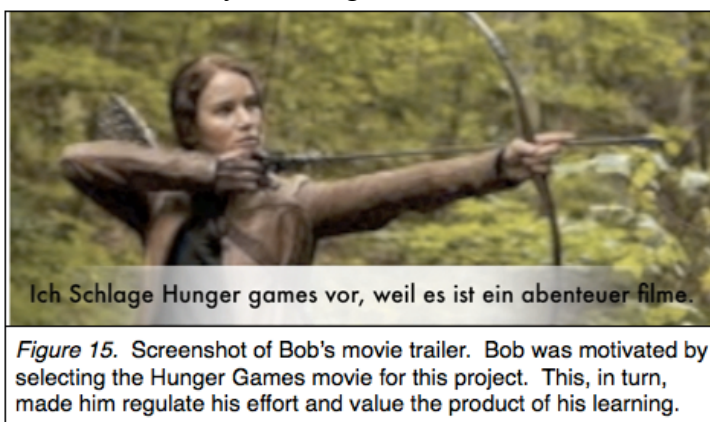
demonstrated engagement by selecting an entirely new vocabulary to express her ideas. A screenshot of Heidi's preposition poster is located in Figure 14.

Students were engaged when they creatively used technology to illustrate and communicate their ideas. By personalizing their learning, students made strong connections between the new information and prior knowledge in long-term memory. Being allowed to personalize the process and product of their learning provided the opportunity for students to utilize elaboration techniques.

Motivation, Task Value, and Effort Regulation

Students were motivated when using effectively integrated technology to show what they know. The combination of meaningful assessments and the use of technology motivated students in a number of ways. Participants described motivation in terms of enjoying the process of using technology, getting the chance to be creative, and being proud of their work. These characteristics motivated students to do their best for the sake of doing well. Participants also indicated motivation in terms of having fun, getting good grades, and presenting their projects to an audience of their peers. These elements of motivation represented in the qualitative data were strongly supported by the quantitative subscales of task value and effort regulation. Although neither of these subscales indicated a significant change between pre- and post-tests, student motivation was supported by the high scores for both task value ($M=4.30$, $SD=.42$) and effort regulation ($M=4.28$, $SD=.68$). When students were engaged in their learning while completing meaningful technology-based assessments, they came to find more value in the process and product of what they were doing. In turn, this spurred students to regulate their effort in order to complete a high quality summative assessment.

Several participants indicated they were motivated by the tasks or content they found to be fun or interesting. In his comparison of assessments in German and other classes, Bob highlighted a sense of task value as he described his motivation. Bob noted that personalizing his assessments “motivates me to work harder because I know I get to put what I like in it.” In contrast, he described taking tests in other classes as “boring because you just sit there and look at paper.” When discussing his movie trailer project, he explained that when assessments were interesting, “you like it more and have more motivation to do it, and you probably come out with a better product.” Bob personalized this assessment by selecting his favorite movie, *The Hunger Games*. In his opinion, this



made his project more interesting and led him to find more value in his summative work. Figure 15 is a screenshot of Bob’s movie trailer project.

Rachel also illustrated how motivation is supported by task value in her journal reflection for the movie project. She wrote, “for this project we were able to use a movie that people actually watch, which made it more interesting and more likely to hold your attention.” Rachel then compared this to “other classes where we take tests that don’t allow you to show your work to other classmates at all.” Later she commented that she was motivated to make her projects interesting because she wanted “people to enjoy what they are looking at...instead of just being really bored.” In these comments, Rachel

showed the value she placed on making her work interesting and the significance that played in both her learning and in the learning of her classmates.

The high mean of effort regulation also supports the qualitative theme of motivation. Leo's explanation of the details he included in his ToonDoo project illustrates how students were willing to regulate their effort while working with effectively integrated technology. He embraced the chance to create his own story and felt that the only way he could have improved the project was if he "could have made a

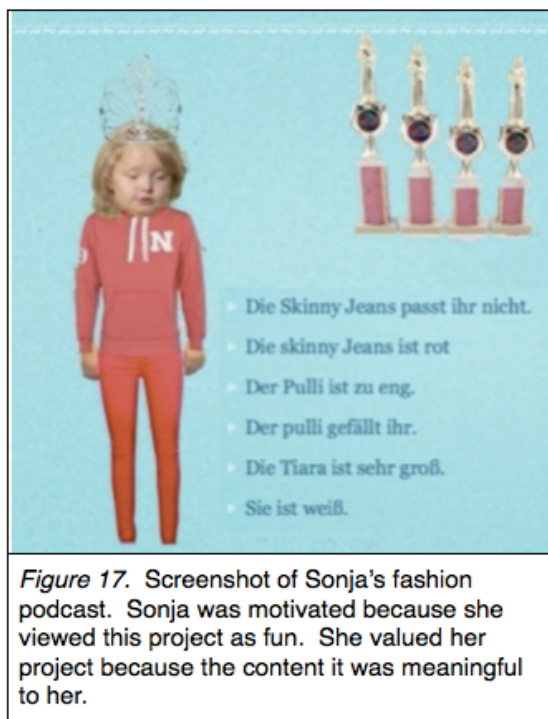


full length story." When asked about the date he included in his story, Leo responded, "I wanted to choose something that was more complex, like the 27th of February." According to Leo, this ordinal number was more difficult because "when you're talking about dates

after the 20th, it has to be --zigsten." Leo was motivated to regulate his effort to do well and even take risks with more challenging content. Figure 16 presents an excerpt of Leo's ToonDoo story.

In Sonja's journal reflection about the fashion podcast, she reported, "I was very motivated to do this project because it was very fun and filled with creativity." Sonja put forth extra effort by purposefully adding the face of her favorite TV character to her project model. She added that by selecting something she thought was "fun" she was more inclined to want to work on her project. Because Sonja could have fun with her

project and be creative while working on it, she was motivated to try her best in order to do well. Sonja also described regulating her effort when “things that were kind of hard,



like genders” challenged her. To handle this challenge, Sonja put extra effort in double-checking “either the online dictionary or study guides” to ensure she presented her content correctly. Figure 17 presents a screenshot from Sonja’s fashion podcast.

Throughout the descriptions of their assessments, students discussed motivation in terms of greater task value and regulation of their effort. When using technology to

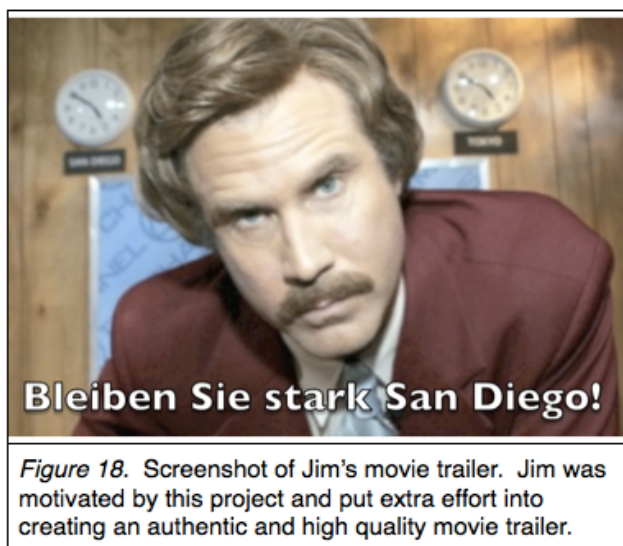
demonstrate language proficiency, and having fun doing so, students were engaged and motivated to regulate their effort when personalizing their work. The high mean averages of both task value and effort regulation in the quantitative data were well reflected in students’ descriptions of their motivation.

Effort, Organization, and Critical Thinking

Throughout each of the five summative assessments, students demonstrated effort in the different ways they selected and presented the content of their summative assessments. The above average mean scores of organization ($M=3.51$, $SD=.59$) and critical thinking ($M=3.89$, $SD=.64$) both demonstrate how these motivation strategies reinforced student effort. The above average mean for organization underscore the theme of effort in that “organization strategies help the learner select appropriate information”

and typically result in “the learner being closely involved with the task” (Pintrich et al., 1991, p. 21). The subscale of critical thinking supports the qualitative theme of effort in that students apply prior knowledge “to new situations in order to solve problems, reach decisions, or make critical evaluations with respect to standards of excellence” (Pintrich et al., 1991, p. 22). These quantitative subscales reinforce student effort by highlighting the intentional and strategic decisions participants exhibited in order to successfully complete their summative assessments.

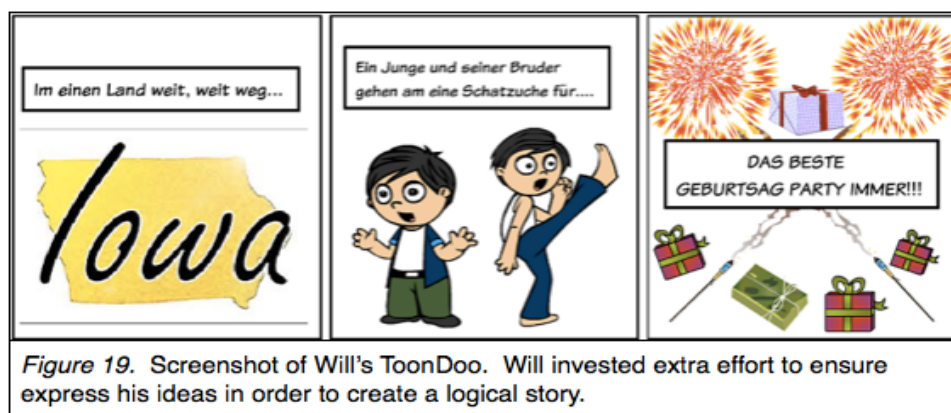
When discussing his movie trailer project, Jim explained “I picked *Anchor Man* because I had recently watched that movie so it was easy to remember” and that the movie was “one of my favorite movies, so it was easier to write sentences for it.” Jim identified that his favorite part of the project was the very last sentence. He explained how he took the “sign off phrase” from the movie and re-wrote it in German in order “to



make it [the project] more like a movie.” When asked about this detail he responded, “I just wanted it to look better because I worked on it for so long.” Figure 18 presents a screenshot of Jim’s movie trailer project. By selecting his favorite movie, Jim invested more effort to successfully demonstrate his language proficiency within a context that was familiar and meaningful. While doing so, he utilized a combination of his prior and recently gained knowledge to express his ideas regarding the content of the movie he

chose. This scenario illustrates how the quantitative subscale of organization, supports the qualitative theme of effort by demonstrating how Jim purposefully chose the context for his project and the effort he invested in making it “look better.”

Will’s use of organization strategies also kept him engaged in the learning process. He noted different elements of his ToonDoo story and how the personalization of his details enhanced the quality of his project. Examples of this included his addition of the phrase “far, far, away” and using Iowa as the location of his story. When asked about these details, Will explained that this was “a good way to start a story...and I have always liked Star Wars.” He continued on to explain how his family had a long running joke about Iowa, so he thought it would be funny to include this as the background of his story. Will noted, “I did the story before the cartoon and tried to keep all the elements in there, but I tried to fit them into a story line and not just say random things.” He continued, “I didn’t want it to look like someone just slapped random sentences onto a piece of paper.” Will put forth effort to enhance his project by selecting appropriate content and personalizing the required elements of his story. This instance illustrates how the quantitative subscale of organization reinforces the qualitative theme of motivation. A screenshot of Will’s ToonDoo story is located in Figure 19.



The quantitative subscale of critical thinking also supported the qualitative data representative of student effort. Participants reported trying harder when they were faced with challenges during the process of completing their projects. These difficulties were often expressed as technical issues or struggling with grammar and other language mechanics. When faced with such obstacles, participants utilized critical thinking by using their prior knowledge to help problem solve or make pertinent decisions regarding the quality of their work.

Marian and Leo both experienced frustration due to technology. Marian exerted effort and used her prior knowledge of technology to resolve an issue she was having with images on a particular website. When she was unable to solve her problem by troubleshooting in the website, she recalled she could use screenshots instead. Leo was faced with a similar issue while working on his digital poster. He explained that he had trouble getting his pictures to upload to the website being used for the project. Instead of giving up or asking for help, Leo problem solved and “decided to take a different approach,” which also involved creating screenshots for his project. Marian and Leo put forth effort to resolve technology issues by critically thinking and accessing their prior knowledge to successfully complete their projects.

Students also became critical thinkers and exerted more effort when faced with effectively communicating in the target language. Rachel demonstrated effort and critical thinking in her journal reflection about the poster project when she wrote, “if I were to revise this project, I would try to make my sentences a little more complex so that I could learn how to use German like I do English.” In other words, in order to improve her work, she would focus on the complexity of sentence content and structure. In doing so,

Rachel would have to rely on her previous knowledge of vocabulary and grammar to help her achieve this goal. Figure 20 is a screenshot of Rachel's digital poster project.

The qualitative data offered strong evidence that technology-based projects influenced participants to put more effort into their summative work. The above

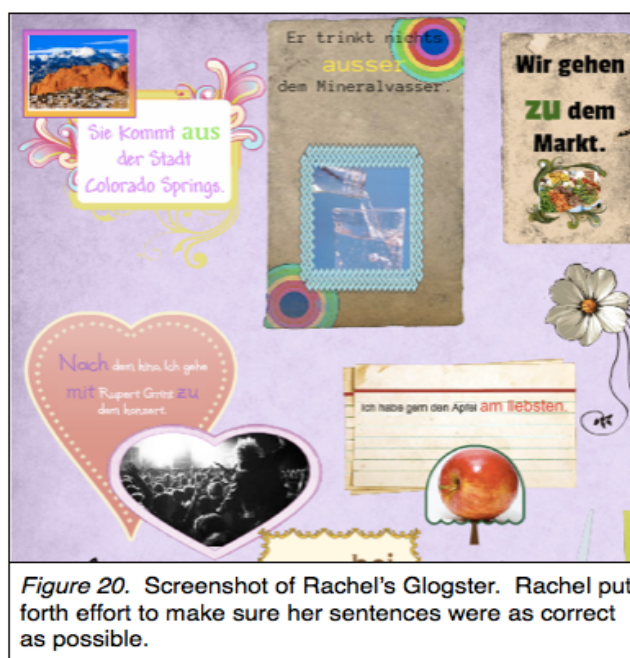


Figure 20. Screenshot of Rachel's Glogster. Rachel put forth effort to make sure her sentences were as correct as possible.

average mean scores for the critical thinking and organization quantitative subscales also reflected this finding. Participants indicated extra effort regarding the selection and presentation of their content (organization) and in the manner that they resolved issues relating to the quality or content of their final products (critical thinking). Students were engaged with their summative work because they cared about the product they were creating. This connection fostered critical thinking and strategic decision making as students put forth effort to effectively communicate in the target language.

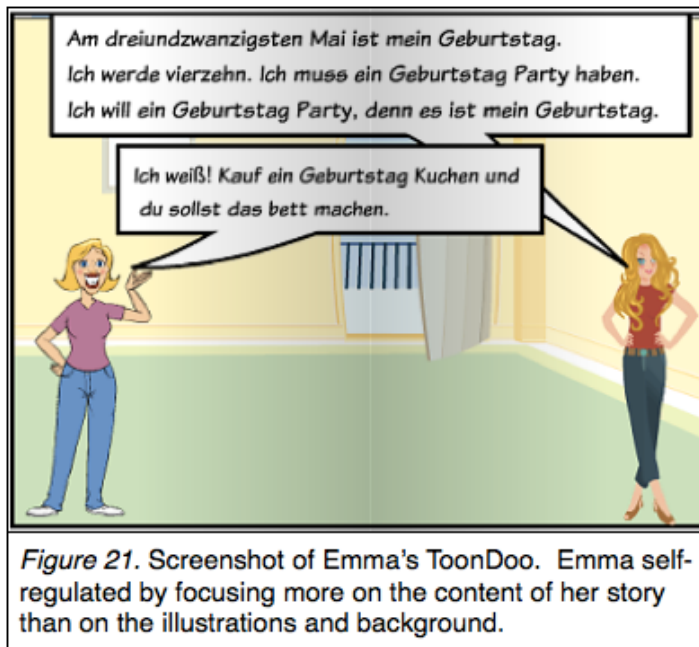
Cognition and Self-Regulation

Students illustrated high levels of cognitive engagement as they described how they self-regulated while working on their summative projects using technology. This qualitative finding is underscored by the above average self regulation subscale ($M=3.96$, $SD=.55$). According to Pintrich et al. (1991), when students utilize self-regulation strategies, they continually fine-tune and adjust their learning (or the products of their

learning) with the purpose of improving the quality of the process and product. Within all of the projects, students demonstrated their cognitive engagement and self-regulation in terms of how they managed their tasks and utilized peer editing and resources.

When reflecting on their use of technology in German class, participants referred to their regulation and engagement by discussing the management of their attention, time, and tasks. Self-regulation was evident when Will indicated that presenting his summative work “really makes you pay more attention, compared to if just the teacher saw it.” With the knowledge he would be presenting his project, Will became more engaged with the fine-tuning his work in order to present a high quality product. He stated, “You really have to think about what you put down and what you put into the project...I usually try to make it interesting to watch as well. I don’t want to bore people when I present it.” Jim used the technology skills he gained in this class to regulate his learning and become engaged in other classes as well. Jim explained, “it’s more personalized in [German class] and when I do use technology in other classes, I can use the tricks that I used in here to make my projects better.” Jim’s cognitive engagement was further enhanced as he self-regulated the processes of writing rough drafts and going through peer editing. He explained that this was different from other classes “because we were able to use our past knowledge to enhance our project and really make it our own.” Jim pointed out the value of using his prior knowledge as a means to enhancing new learning objectives and added that getting to be creative and personalize his work also allowed him to think of his assessments “as more than an assigned project.” He stated, “I want to do it, instead of have to do it.”

Emma demonstrated cognitive engagement in how she regulated her attention toward the content of her summative work. When asked to explain why she felt the content of her story was more important than her illustrations, Emma commented, “Well,



because [the teacher] was grading us on our elements and how we presented it, so I thought, if I spend more time on my dialogue and make it perfect, it would be better than if I spent too much time on the background.” Figure 21

presents a screenshot of

Emma’s ToonDoo short story. Emma recognized the significance of her summative work and was not distracted by the novelty of using the ToonDoo website. She successfully regulated her time and remained cognitively engaged in the content and quality of her project. Emma also illustrated cognitive engagement via self-regulation in the way she utilized her handouts and resources. By using dict.leo.org, the online German dictionary, Emma was regulating her learning to ensure she used the correct genders for words. She stated, “dict.leo.org is a huge help with learning different genders.” Emma continued to assert that when using resources, students have no excuses for getting answers wrong. In effect, she argued that when students use resources there should be a higher expectation for accountability. This example illustrates how the quantitative subscale of self-regulation supports the larger qualitative theme of cognition.

Bob also demonstrated cognitive engagement through self-regulation. He “saved time” by selecting images of rooms from the Internet instead of designing each room on his own. He explained that saving time in this regard “made it so I could also make my project better in different ways.” When asked about the other ways he could improve his project, Bob responded, “I could concentrate on my



Figure 22. Screenshot of Bob's dream house living room. Bob self-regulated by managing his time during this project. By selecting rooms from the Internet, Bob saved time and was able to focus more on the written content of his project.

vocabulary and word placing.” Bob strategically planned his time to allow him the chance to put more effort towards the written content of his project. In addition to regulating his time, Bob remained cognitively engaged as he worked through the peer editing process. He described the process of getting his description of his dream house “checked by our elbow partners.” This process involved looking at “all the verbs” in order to “make sure they were right” and that “all the right things were capitalized.” Bob was cognitively engaged as he continued to regulate his learning by finding and correcting his mistakes. A screenshot of the living room in Bob’s dream house is located in Figure 22.

These examples illustrate how the above average pre- and post-test means for the self-regulation subscale support the qualitative finding that students remain cognitively engaged when completing technology-based assessments in German class. Though there

was not a significant change in students' reported self-regulation, the qualitative data indicate students experienced cognitive engagement when they regulated their effort and learning while completing task-based technology projects.

CHAPTER 7

DISCUSSION

Summary of the Study

This embedded mixed-methods case study was conducted to gain better insight on student engagement and technology integration. The study explored the student perspective of using technology in German class and measured students' motivated strategies for learning at the beginning and end of the year. After data were concurrently gathered using qualitative and quantitative methods, they were independently analyzed to address the respective research questions. Finally, they were compared and integrated at the end of the study in order to answer the final mixed methods inquiry. The generated data offered substantial and descriptive insights regarding students' perceptions of their engagement when technology was integrated in German class.

Findings and Assertions

Self-Determination Theory posits that students will become self-determined when they experience autonomy, competency and relatability (Deci et al., 1991). Once these psychological needs are fulfilled, students will begin to regulate their learning. The current study demonstrated that by addressing these elements on an individual basis, language teachers could foster self-determined and regulated learners. This finding was true for students across an achievement spectrum. Giving students the chance to be autonomous allowed them to personalize the process and product of their learning. This personalization functioned as an elaboration technique, which helped students connect prior knowledge with newly learned information. As information was successfully

embedded in long-term memory, students became more proficient and were eventually able to focus on new vocabulary and more advanced language structures.

When students are connected with class content and objectives, they feel more compelled to ensure the quality of their learning. This connection causes students to regulate their effort, paying special attention to details and focusing on the necessary tasks involved in achieving the learning objective. This finding reflects similar assertions posited by researchers in the field of self-regulated learning (Zimmerman, 1990; Schunk, 2005; Schunk & Zimmerman, 2008; Wigfield et al., 2008). By experiencing the needed conditions for self-determination and self-regulating to occur, students were motivated to be active participants in their learning (Noels et al., 2003; Gagne & Deci, 2005; Campbell, 2009; Stone et al., 2009).

This study illustrates that when technology is effectively integrated, it is more than just a resource for students. It becomes a successful motivational strategy for maximizing student engagement and self-regulation. Within both data sets and across all projects, low and high achieving students personalized their learning, put forth effort, self-regulated and were overall motivated when using technology to show what they know. Though higher achieving students demonstrated proficiency more consistently, lower achieving students indicated similar levels of engagement as their high achieving classmates. In the area of motivation, there was a slight difference. While low and middle achieving participants indicated getting good grades as a main source of motivation, higher achieving students were more often motivated to do their best and to communicate clearly. Students from both ends of the distribution demonstrated self-regulating behaviors, though higher achieving students focused on more complex

grammar structures and were more accurate in terms of language structures. This study, along with previous research, shows that when technology is combined with contextualized task-based learning, language learners, regardless of achievement level are motivated and engaged (Tseng, 2006; Collins & Halverson, 2009; Hong, 2010; Revere & Kovach, 2011).

As digital natives, the participants in this study were critical of how teachers used technology and commonly referred to an insufficient application of their laptops in many of their classes. Participants indicated that teachers under utilized the laptops and often imposed strict limits on how they could be used. However, this trend was not true of German class. When technology was effectively integrated in German, participants indicated that autonomy and creativity were supported causing a strong bond to form between the students and their technology-based projects. As each layer was applied to an assessment, students could portray elements of their own character, which lead them to share significant details about their personalities and background. This information created a better understanding of the students as individuals, while enhancing the overall rapport and communication in the language classroom. Not only were the laptops used more effectively, but they also fostered a communicative language-learning environment.

Students commonly describe traditional tests as stressful and boring. To change these perceptions and improve the assessment experience, teachers must consider alternative approaches to testing. Assessment formats that integrate technology and allow students to creatively demonstrate proficiency can motivate them to exert more effort and to better regulate their learning. Students develop stronger connections to learning objectives when they are processed in a customizable and engaging digital

format. To lessen the consequence of distraction and off-task behavior, teachers can provide structured timelines, rubrics and task lists. In doing so, language teachers support students' organization and self-regulated learning in a productive and efficient fashion.

Though data has shown that students feel more engaged when they use technology to demonstrate their knowledge, the question remains about how technology integration actually impacts language achievement and language proficiency. It was beyond the scope of this study to measure language proficiency, but this would be strongly recommended for future investigation. In the context of the current study, effectively integrated technology supported language acquisition by offering students efficient and novel means for developing knowledge within the target language, as well as providing access to authentic cultural resources in multiple media formats. In addition to offering students a digital platform for constructing and negotiating meaning, the technology based projects presented multiple opportunities for students to utilize interpretive and presentational modes of communication. Effective technology integration provides language learners a context for meaningful interactions in the target language in a manner that is more relevant and reflective of the learning preferences of millennial students.

Conclusion

This research study presented a case in which students were actively and deeply engaged in the language learning process. A beginning level German teacher maximized student engagement inside and outside of class by effectively integrating technology. When given the chance to be autonomous regarding the content and presentation of their

work, the process and product become more meaningful to the student. These students became engaged in their German projects, which motivated them to regulate their learning in order to do their best. The opportunities to have fun and creatively express ideas were also factors that engaged students in their learning. Students were presented with a combination of meaningful learning tasks, which integrated technology and prompted personalization and creativity. By using technology to show what they know, students experienced deeper cognitive engagement and a sense of pride in what they accomplished.

Qualitative Research Questions

The qualitative inquiry in this study sought to better understand the student perspective of technology-integrated language learning at the beginning level. Data was gathered by asking 8th grade German students to discuss their technology-based summative assessments, complete guided journal reflections, and participate in a semi-structured interview. After thematic coding and analysis, the researcher identified four major themes that represented student engagement. These were autonomy, motivation, effort and cognition. In addition to providing student perspectives on engaged learning, qualitative data indicated that participants valued the opportunity to be creative when using alternate forms of assessment. In this study, the student experience of language learning in a technology-laden German class was indicative of engaged and meaningful learning.

Quantitative Research Questions

The quantitative inquiry conducted for this mixed methods study evaluated how students used motivated strategies for learning throughout the year. Specifically, students

rated these strategies within the context of six domain areas, including task value, elaboration, effort regulation, critical thinking, organization and self-regulation. Descriptive statistics were analyzed, finding that different domain areas produced different means. There was a similar hierarchy of the means for the pre- and post-tests. Task value and effort regulation had the highest means, while critical thinking and organization scored the lowest means. Comparative *t*-Tests were run for all six domain areas. Elaboration was the only subscale to show a significant change between pre- and post-tests.

Mixed Methods Question

Qualitative and quantitative data were reviewed and compared to better understand how student engagement could be maximized in German class while using technology. A joint data display was created to demonstrate how the qualitative findings were reinforced by the quantitative data. Finally, a comprehensive discussion provided analysis of how the two strands of data represented student engagement in the language classroom.

When combined, the quantitative and qualitative data in this study compose a mosaic that represents student perceptions of technology-integrated language learning. It is apparent that the students became self-determined when they experienced autonomy, competency and relatability in German class. A technology-laden, autonomy-supportive learning environment fostered a connection between students and their learning objectives by giving them the chance to personalize the process and final product. Experiencing autonomy made learning more meaningful for students and prompted them to invest more effort in regulating their learning in order to successfully demonstrate their

proficiency. By focusing on trends and issues that were relevant to students, the teacher created a class atmosphere that was engaging and supportive. A sense of community was created when students discussed opinions on interesting topics, collaborated with classmates during the proofreading processes, and by sharing their final products with a group of their peers. These students were willing to take risks while expressing their ideas in the target language because of their connection with the learning environment. Student engagement was at its highest when students found interest and enjoyment in completing tasks that were meaningful and relevant.

Limitations

This study contains a number of limiting factors to consider. A convenient sample was selected for the study, with all participants being willing and able to participate (Creswell, 2005). Because of this, the case in this study provided a small sample size of forty participants. The narrow focus on these students and their experiences with technology in German class make it difficult to generalize the findings. The absences of random sampling also limited the generalizability of the generated quantitative data. The researcher's knowledge of and proximity to the participants in this study is another limitation to consider. A need to please the teacher may have influenced student responses while completing the adapted MSLQ and during the semi-structured interviews.

Implications

While the role of technology in education is rapidly increasing and updating, there have been decreases in German courses and even the elimination of entire programs. This reality gives world language teachers, and others involved in second language

education, an impetus for taking steps towards enlivening German programs, instruction and learning. This study offers a significant implication for the necessity to create environments and opportunities that compel students to be engaged language learners, regardless of their achievement level. It is important for language teachers to consider how technology integration can be an effective tool at helping low achieving students develop better self-regulation and eventual higher achievement. Additionally, teacher-training programs may draw insights regarding the significance of developing technological pedagogical content knowledge. Though the suggestions made in this study are in no wise exhaustive, it means to inform the intended audience and encourage them to increase engagement in the language classroom. At the university level, pre-service teachers need theoretical and hands-on training to understand how technology can enhance learning. Administrators and curriculum specialists can also reinforce engagement by supporting language teachers as they venture from the textbook to take new approaches towards teaching language. In the classroom, language teachers must commit to integrating technology in an effective and meaningful way, all the while providing their students with proper amounts of structure and autonomy.

Future Research

There are a number of potential avenues for future research on technology-integration and engagement in the second language classroom. The first suggestion is to build upon the current research by adding the variable of student achievement as another component to the quantitative data. By looking at achievement and students' reported levels of engagement when using technology, researchers may be able to identify compelling evidence that effective technology integration can lead to higher achievement

while learning a second language. Conducting a multiple case study analysis on technology integration and student engagement in other world language classrooms would also be a worthwhile inquiry. While 8th grade German students reported technology to be motivating and indicated that it influenced their level of engagement, future research could assess if these findings are true for older language learners. In addition, it would be useful to acquire quantitative evidence that reflects the impact of student's perceptions of teacher effort and how it influences their own level of effort regulation. To reduce researcher bias, a replication of the current study, conducted by another researcher, may also provide insights on the nature of the student experience from a more objective perspective. This study would also benefit from future research efforts aimed at using alternative quantitative instruments to measure student engagement, specifically as it relates to learning with technology.

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APPENDIX A: JOURNAL REFLECTION PROMPTS

In paragraph form, do your best to address the following questions.

1. Describe the project in a couple sentences.
2. What is important to you about this project?
3. What are the strengths of the project?
4. What did you like or dislike about this project?
5. How could you revise the project to make it better?
6. What type of decisions could you make and how did that make you feel working on this project?
7. What were your pre-writing or pre-project activities? (brainstorm, outline, graphic organizer)
8. How did this assessment and the processes and strategies you used for it differ from assessments in your other classes?
9. Were you motivated to do this project? Why/why not?

APPENDIX B: STIMULATED-RECALL SESSION PROMPT

Stimulated Recall Protocol

Read to Participant:

What we are going to do now is look over and discuss some of your projects from this year. I am interested in what you were thinking when you were working to complete these projects. Your projects are reflective of your learning, but they do not represent what you were thinking while you were creating them. So, what I'd like you to do is tell me what you were thinking or what was on your mind during the process of finishing these projects.

I will let you walk me through the projects. At any time while we are discussing them if you have a question or want to tell me something, go ahead. If I have any questions as we go along, I will also ask you.

Probe Questions:

What made you decide to go that route?

What influenced that decision?

What were you thinking at that point?

How did this make you feel?

Can you tell me what you were thinking when you decided to...?

APPENDIX C: SEMI-STRUCTURED INTERVIEW PROTOCOL

Participant Name:

Alias:

Gender:

Introduction:

Hello and thank you for taking time to speak with me today. In this interview I will be asking you questions about using technology in German class. There are no right or wrong answers, so there is no need to worry about getting answers correct. I am curious to know how you describe the different aspects of how technology impacts what you do in German class. Please take your time and feel free to share as much as you would like.

Questions	Response	Notes
<p>1. How do you describe your experience with using technology in German class?</p> <p>(What type of tools or applications do you use?)</p>		
<p>2. What role do you feel technology plays in helping you learn German?</p> <p>(What types or aspects of technology are most helpful/useful to you?)</p>		

Questions	Response	Notes
<p>3. What do you like/dislike about using technology in German class?</p>		
<p>4. How do you describe your level of motivation when you use technology (your laptop) in German class?</p> <p>(Does technology motivate you to try harder? How do you think it motivates you?)</p>		

Questions	Response	Notes
<p>5. How do you feel about the summative products that are based on technology replacing tests in German class?</p> <p>(Does technology let you be more creative?)</p>		
<p>6. How do you describe your summative products in other classes?</p> <p>(How about in comparison to German class If it is different, how so?)</p> <p>(How do you compare using technology in German class to how it is integrated into your other core classes?)</p>		

Questions	Response	Notes
<p>7. How much time do you spend working on projects outside of class?</p> <p>(For example, how do you start, continue and finish a project in German? What are the steps involved?)</p>		
<p>8. How do you describe your critical thinking when you use technology in German class?</p> <p>(In other words, how do you use your prior knowledge to help you when you work with technology in German class?)</p>		

Questions	Response	Notes
<p>9. Besides for completing projects, please describe any other ways in which you use technology for learning in German class?</p> <p>(How is it used in other classes?)</p> <p>(Do you use technology to help you stay organized, to communicate with your teacher or to study/practice class content?)</p>		

APPENDIX D: MODIFIED STUDENT MOTIVATION QUESTIONNAIRE

Name:

Modified Student Motivation Questionnaire

(Adapted from the Motivated Strategies for Learning Questionnaire)

Directions for Students:

You will be reading some statements that describe being a student in German class. Please read each statement carefully and decide how it relates to you. Circle the number that best represents how you feel about each statement.

Remember, there are no right or wrong answers. Your opinions are what counts most.

The scale is as follows:

- 1 (never true of me)**
- 2 (almost never true of me)**
- 3 (sometimes true of me)**
- 4 (very often true of me)**
- 5 (always true of me)**

Be sure to circle a response for each statement. If you change your mind, just scratch it out and make a new selection. Some statements may appear similar, don't worry about this. Just answer each one as best as you can.

1. I think I can use skills I learn in this class in my other classes.	1	2	3	4	5
2. I often feel so lazy or bored, that I don't study for German tests or complete my German homework.	1	2	3	4	5
3. I often miss out on important information in class because I am bored or off task.	1	2	3	4	5
4. When I study for this class, I use different types of resources, such as handouts, notes, the textbook, vocabulary sheet and the Internet.	1	2	3	4	5
5. It is important to me to learn German.	1	2	3	4	5
6. I work hard to do well in this class, even if I don't like what we are doing.	1	2	3	4	5
7. I am very interested in what we learn in this class.	1	2	3	4	5
8. When I get confused in this class, I try to figure it out instead of giving up.	1	2	3	4	5
9. I try to connect what I learn in this class to my other classes whenever possible.	1	2	3	4	5
10. If it is difficult to complete a task, I find a different way to complete the task.	1	2	3	4	5
11. When what we are learning gets difficult, I give up or only study the easy stuff.	1	2	3	4	5
12. I think the things I learn in this class are useful.	1	2	3	4	5

13. When new things are introduced I try to connect them to what I already know.	1	2	3	4	5
14. I try to understand what we are learning in this class by making connections between the learning activities and final projects.	1	2	3	4	5
15. Even if what we are learning is easy or boring, I still stay on task and finish my work.	1	2	3	4	5
16. To make sure I understand the material I am studying for German, I ask questions of myself.	1	2	3	4	5
17. When I complete tasks or projects for this this class, I set goals for myself in order to stay on task and meet the deadline.	1	2	3	4	5
18. I like German class.	1	2	3	4	5
19. It is very important to me to understand what I am learning in German class.	1	2	3	4	5
20. I try to apply what I learn from daily activities in German class to larger projects.	1	2	3	4	5
21. If I get confused in class, I will go in and ask the teacher for help or an explanation.	1	2	3	4	5
22. I often think about the things I learn in German class to decide if they are meaningful.	1	2	3	4	5
23. When I study for German, I organize my materials to help me organize my thoughts.	1	2	3	4	5
24. When I study for German, I review the materials for the most important ideas and concepts.	1	2	3	4	5
25. When told to use certain technology or applications in German, I think about if they are good choices for the purpose of the assignment.	1	2	3	4	5
26. I try to express my own ideas using the skills I learn in German class.	1	2	3	4	5
27. I make checklists, charts, documents or tables to help me organize what I learn in German class.	1	2	3	4	5
28. I try to include things I am interested in when learning new content in German class.	1	2	3	4	5
29. When I study for German, I go over the handouts and other materials and make a list or an outline of the important concepts.	1	2	3	4	5
30. I think about alternative ways I could have completed a project for German class.	1	2	3	4	5

APPENDIX E: ADAPTED AND RESPECTIVE MSLQ QUESTIONS WITH SUBSCALES

Adapted MSLQ question	Original MSLQ question	Subscale
1. I think I can use skills I learn in this class in my other classes.	4. I think I will be able to use what I learn in courses.	Task Value
2. I often feel so lazy or bored, that I don't study for German tests or complete my German homework.	37. I often feel so lazy or bored when I study for this class that I quit before I finish what I planned to do. (reversed)	Effort Regulation
3. I often miss out on important information in class because I am bored or off task.	33. During class I often miss important points because I am thinking of other things. (reversed)	Self Regulation
4. When I study for this class, I use different types of resources, such as handouts, notes, the textbook, vocabulary sheet and the Internet.	53. When I study for this class, I pull together information from different resources, such as lectures, readings, and discussions.	Elaboration
5. It is important to me to learn German.	10. It is important to me to learn the course material in this class.	Task Value
6. I work hard to do well in this class, even if I don't like what we are doing.	48. I work hard to do well in this class even if I don't like what we are doing.	Effort Regulation
7. I am very interested in what we learn in this class.	17. I am very interested in the content area of this course.	Task Value
8. When I get confused in this class, I try to figure it out instead of giving up.	41. When I become confused about something I'm reading for this class, I go back and try to figure it out.	Self Regulation
9. I try to connect what I learn in this class to my other classes whenever possible.	62. I try to relate ideas in this subject to those in other courses whenever possible.	Elaboration
10. If it is difficult to complete a task, I find a different way to complete the task.	44. If course materials are difficult to understand, I change the way I read the material.	Self Regulation
11. When what we are learning gets difficult, I give up or only study the easy stuff.	60. When course work is difficult, I give up or only study the easy parts. (reversed)	Effort Regulation
12. I think the things I learn in this class are useful.	23. I think the course material in this class is useful for me to learn.	Task Value
13. When new things are introduced I try to connect them to what I already know.	64. When reading for this class, I try to relate the material to what I already know.	Elaboration

14. I try to understand what we are learning in this class by making connections between the learning activities and final projects.	69. I try to understand the material in this class by making connections between the readings and the concepts from the lectures.	Elaboration
15. To make sure I understand the material I am studying for German, I ask questions of myself.	74. Even when the course materials are dull and uninteresting, I manage to keep working until I finish.	Effort Regulation
16. To make sure I understand the material I am studying for German, I ask questions of myself.	55. I ask myself questions to make sure I understand the material I have been studying in this class.	Self Regulation
17. When I complete tasks or projects for this this class, I set goals for myself in order to stay on task and meet the deadline.	78. When I study for this class, I set goals for myself in order to direct my activities in each study period.	Self Regulation
18. I like German class.	26. I like the subject matter of this course.	Task Value
19. It is very important to me to understand what I am learning in German class.	27. Understanding the subject matter of this course is very important to me.	Task Value
20. I try to apply what I learn from daily activities in German class to larger projects.	81. I try to apply ideas from course readings in other class activities such as lecture and discussion.	Elaboration
21. If I get confused in class, I will go in and ask the teacher for help or an explanation.	79. If I get confused taking notes in class, I make sure to sort it out afterwards.	Self Regulation
22. I often think about the things I learn in German class to decide if they are meaningful.	38. I often find myself questioning things I hear or read in this course to decide if I find them convincing.	Critical Thinking
23. When I study for German, I organize my materials to help me organize my thoughts.	32. When I study the readings for this course, I outline the material to help me organize my thoughts.	Organization
24. When I study for German, I review the materials for the most important ideas and concepts.	42. When I study for this course, I go through the readings and my class notes and try to find the most important ideas.	Organization
25. When told to use certain technology or applications in German, I think about if they are good choices for the purpose of the assignment.	47. When a theory, interpretation, or conclusion is presented in class or in the readings, I try to decide if there is good supporting evidence.	Critical Thinking
26. I try to express my own ideas using the skills I learn in German class.	51. I treat the course material as a starting point and try to develop my own ideas about it.	Critical Thinking
27. I make checklists, charts, documents or tables to help me organize what I learn in German class.	49. I make simple charts, diagrams, or tables to help me organize course material.	Organization

28. I try to include things I am interested in when learning new content in German class.	66. I try to play around with ideas of my own related to what I am learning in this course.	Critical Thinking
29. When I study for German, I go over the handouts and other materials and make a list or an outline of the important concepts.	63. When I study for this course, I go over my class notes and make an outline of important concepts.	Organization
30. I think about alternative ways I could have completed a project for German class.	71. Whenever I read or hear an assertion or conclusion in this class, I think about possible alternatives.	Critical Thinking
	Discarded Questions	
	67. When I study for this course, I write brief summaries of the main ideas from the readings and the concepts from the literature.	Elaboration
	36. When reading for this course, I make up questions to help focus my reading.	Self Regulation
	54. Before I study new course material thoroughly, I often skim it to see how it is organized.	Self Regulation
	57. I often find that I have been reading for class but don't know what it was all about.	Self Regulation
	61. I try to think about a topic and decide what I am supposed to learn from it rather than just reading it over when studying.	Self Regulation
	76. When studying for this course I try to determine which concepts I don't understand well	Self Regulation

APPENDIX F: IRB APPROVAL

June 19, 2012

IRB Number: 20120612513EP

Project ID: 12513

Project Title: Laptops and Language Learning: A mixed methods study of technology integration and student engagement

Dear Aleidine:

This letter is to officially notify you of the approval of your project by the Institutional Review Board (IRB) for the Protection of Human Subjects. It is the Board's opinion that you have provided adequate safeguards for the rights and welfare of the participants in this study based on the information provided. Your proposal is in compliance with this institution's Federal Wide Assurance 00002258 and the DHHS Regulations for the Protection of Human Subjects (45 CFR 46). Your project has been approved as an Expedited protocol, category 6 & 7.

Dates of EP Review: 05/10/2012 & 06/12/2012

You are authorized to implement this study as of the Date of Final Approval: 06/19/2012. This approval is Valid Until: 06/18/2013.

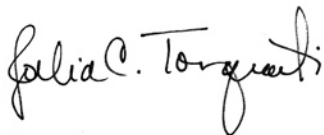
We wish to remind you that the principal investigator is responsible for reporting to this Board any of the following events within 48 hours of the event:

- * Any serious event (including on-site and off-site adverse events, injuries, side effects, deaths, or other problems) which in the opinion of the local investigator was unanticipated, involved risk to subjects or others, and was possibly related to the research procedures;
- * Any serious accidental or unintentional change to the IRB-approved protocol that involves risk or has the potential to recur;
- * Any publication in the literature, safety monitoring report, interim result or other finding that indicates an unexpected change to the risk/benefit ratio of the research;
- * Any breach in confidentiality or compromise in data privacy related to the subject or others; or
- * Any complaint of a subject that indicates an unanticipated risk or that cannot be resolved by the research staff.

For projects, which continue beyond one year from the starting date, the IRB will request continuing review and update of the research project. Your study will be due for continuing review as indicated above. The investigator must also advise the Board when this study is finished or discontinued by completing the enclosed Protocol Final Report form and returning it to the Institutional Review Board.

If you have any questions, please contact the IRB office at 472-6965.

Sincerely,

A handwritten signature in black ink that reads "Julia C. Torquati". The signature is fluid and cursive, with the first name "Julia" and last name "Torquati" clearly legible, and a middle initial "C." in between.

Julia Torquati, Ph.D.
Chair for the IRB



APPENDIX G: PARENT INFORMED CONSENT

**PARENTAL INFORMED
CONSENT FORM IRB # 12513
Laptops and Language Learning: A mixed methods
study of technology integration and student
engagement**

You are invited to permit your child to participate in this research study. The following information is provided in order to help you to make an informed decision whether or not to allow your child to participate. If you have any questions please do not hesitate to ask.

Your child is eligible to participate in this study because he/she is currently enrolled in German 1B at Westside Middle School. Your child will also be asked if he/she is willing to participate.

The purpose of this study is to explore, first-year language students' perceptions of their engagement when technology is integrated into the learning process.

The study will last the duration of the 2012/2013 school year and will take place at Westside Middle School. In addition to the regularly planned curriculum, assessments and guided reflections, participation in the study basically includes completing a questionnaire/survey at the beginning and end of the year. The survey will be given during class time and should take no more than fifteen minutes to complete. The topic of *self-regulation* is an example of theme the survey seeks to explore. For example, students will be asked to rate, on a scale of 1 to 7 (1 being low, 7 high), how true a statement such as "When I complete tasks or projects for this this class, I set goals for myself in order to stay on task and meet the deadline." is to them. Students that choose to not participate during the survey will be allowed to work on other schoolwork or an enrichment activity for German class.

Aside from the survey, which all students will be asked to complete, 9 students will be selected for additional interviews to further explore issues related to student engagement, motivation and self-regulation. If your child is selected as one of the 9, they will be asked to come in for a short interview before or after school 7 times over the course of the school year. The first 6 sessions may last from 10 to 15 minutes, depending on how much the student has to say. During these mini-interview sessions, your student will be asked to review his or her summative work (projects) and describe his/her motivations and the steps they took to complete the project. These sessions will be video-recorded and transcribed verbatim. The final interview may last 15 to 30 minutes and will be at the end of the school year. This interview will be to gather students' overall feelings about language learning and technology integration in German class. This interview will be audio-recorded and transcribed verbatim. All interviews will be scheduled before or after school to best accommodate student schedules. Over the entire year, the time commitment could add up to be somewhere between an hour and an hour and a half of time spent outside of class.

For their extra involvement, the 9 students interviewed, will also be offered a small compensation in form of a snack of their choice. After inquiring about students' favorite snacks, I will communicate with you (via phone or email) to ensure that your student's snack choice is acceptable and that there are no dietary restrictions, such as allergies.

Participating in this study will give students an opportunity to express their ideas and opinions about learning and technology integration. Hopefully, by giving students a platform to reflect about and discuss how technology impacts their learning, teachers will take note and consider the role of technology in their own classrooms.

There are no known risks associated with this research.

Any information obtained during this study, which could identify your child will be kept strictly confidential. The audio-recordings will be kept in as a digital file on my external hard-drive for up to five years and will then be erased. The information obtained in this study may be published in educational journals or presented at world language meetings, but your child's identity and the identity of the school will be kept strictly confidential.

Your child's rights as a research participant have been explained to you. You may ask any questions concerning this research and have those questions answered before agreeing to participate in or during the study. Or you may call the investigator at any time, office phone, (402) 390-6363, or after hours (402) 708-2444. Please contact the investigator: Ginger Starks-Yoble, if you want to voice concerns or complaints about the research or in the event of a research related injury.

Please contact the University of Nebraska-Lincoln Institutional Review Board at (402) 472-6965 for the following reasons:

- you wish to talk to someone other than the research staff to obtain answers to questions about your rights as a research participant
- to voice concerns or complaints about the research
- to provide input concerning the research process
- in the event the study staff could not be reached,

Participation in this study is voluntary. You are free to decide not to enroll your child in this study. You can refuse to participate or withdraw your child at any time without harming their or your relationship with the researchers (Ginger Starks-Yoble and Dr. Ali Moeller), Westside Middle School, the University of Nebraska-Lincoln. Declining to participate or withdrawing from the study will not cause a penalty or loss of benefits to which your child is otherwise entitled.

DOCUMENTATION OF INFORMED CONSENT

YOU ARE VOLUNTARILY MAKING A DECISION WHETHER OR NOT TO ALLOW YOUR CHILD TO PARTICIPATE IN THE RESEARCH STUDY. YOUR SIGNATURE CERTIFIES THAT YOU HAVE DECIDED TO ALLOW YOUR CHILD TO PARTICIPATE HAVING READ AND UNDERSTOOD THE INFORMATION PRESENTED. YOU WILL BE GIVEN A COPY OF THIS CONSENT FORM TO KEEP.

 Child's Name

 Signature of Parent

 Date

IN MY JUDGEMENT THE PARENT/LEGAL GUARDIAN IS VOLUNTARILY AND KNOWINGLY GIVING INFORMED CONSENT AND POSSESSES THE LEGAL CAPACITY TO GIVE INFORMED CONSENT TO PARTICIPATE IN THIS RESEARCH STUDY.

 Signature of Investigator

 Date
IDENTIFICATION OF INVESTIGATORS

Ali Moeller, PhD	Office: 472-2024 (primary investigator)
Ginger Starks-Yoble, MA	School: 390-6464

APPENDIX H: CHILD ASSENT FORM

CHILD ASSENT FORM**IRB# 12513****Laptops and Language Learning: A mixed methods study of technology integration and student engagement**

We would like to invite you to take part in this study. We are asking you because you are a beginning level German student.

In this study we will try to learn more about how your engagement in learning is impacted by using technology. To participate you will be asked to complete a questionnaire/survey at the beginning and end of the school year. In addition, a group of 9 students will be selected to complete 7 interviews with Mrs. Starks-Yoble. The first 6 interviews will be mini-interview sessions, lasting 10 to 15 minutes. The final interview has 9 questions and may take 15 to 30 minutes. All interviews will be scheduled before or after school to accommodate your schedule.

A benefit of your participation will be the chance to help convince other teachers why they should integrate technology as a tool for students to demonstrate what they learn.

Your parents will also be asked to give their permission for you to take part in this study. Please talk this over with your parents before you decide whether or not to participate. You do not have to be in this study if you do not want to. If you decide to participate in the study, you can stop at any time.

If you have any questions at any time, please ask Mrs. Starks-Yoble.

IF YOU SIGN THIS FORM IT MEANS THAT YOU HAVE DECIDED TO PARTICIPATE AND HAVE READ EVERYTHING THAT IS ON THIS FORM. YOU AND YOUR PARENTS WILL BE GIVEN A COPY OF THIS FORM TO KEEP.

_____ Signature of Subject	_____ Date
_____ Signature of Investigator	_____ Date

INVESTIGATORS

Ali Moeller, PhD	Office: 402-472-2024
Ginger Starks-Yoble, MA	School: 402-390-6464