

Utilizing Digital Portfolios to Document the Process of Learning in the Classroom:
An Action Research Plan

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In his book *The Anxious Generation*, author Jonathon Haidt recounts the negative evolution in student learning styles and motivations observed post COVID-19 as described routinely by public educators (Haidt, 2024). Public education has experienced cycles of disinterest or apathy in the past, however, the unique role of cyberlearning during the COVID-19 outbreak has infringed on the learning process, leaving enduring symptoms of indifference and detachment (Mogas, Alvarez, and Pazos-Justo, 2023). Cyberlearning paired with the endless use of mobile devices and social media in the classroom has directly influenced disconnection from academic content at an exponential rate (Haidt, 2024). Educators have perpetually sought solutions and strategies to initiate student interest in all stages of the learning process, including potential failures. Dr. Carol Dweck describes the growth mindset as the catalyst for student growth, development and resilience when facing challenging tasks. The growth mindset allows a student to see potential failure simply as an instructional stage in the learning process as opposed to an obstacle that can lead to frustration and decreased confidence. The growth mindset also allows students to adapt to a perception where failure has the potential to be a master teacher, and accomplishments and accolades are not reserved simply for the final product. In contrast, the growth mindset allows us to celebrate the resiliency required to use failure as a provocation for growth instead of an impediment to learning or accomplishment (Dweck, 2016). Jiang, Fang and Mueller describe one additional benefit of the growth mindset in adolescents; the growth mindset can transform into a moderate buffer that insulates students from experiencing increased stress when faced with difficult tasks (Jiang, Fang, and Mueller, 2023). Educators continually search for solutions and strategies to engage students and build student autonomy; fortunately, research has shown that digital portfolios, or e-portfolios, have the unique ability to enhance digital competency and employability skills, as well as focus student awareness and assessment towards the learning process itself. Terms such as “transformative learning” (Di Silvestro and Nadir, 2021, pg 154) and “productive learning” (Yang, Tai and Ping, 2016, pg 1276) have stemmed from the increased engagement and student autonomy, as well as the development of enhanced critical thinking and higher order thinking skills. Educational tools such as e-portfolios have numerous benefits to students of any age and circumstance, however, the author seeks to specifically study the impact of digital portfolios on the growth mindset of students in the Career and Technology classroom. Using research on both the impact of the growth mindset and the influence of e-portfolios when used to assess the learning process, the author will explore the combined impact of these variables to student satisfaction, engagement in content, student and teacher relationships, and classroom culture. The purpose of the research question includes the pursuit of any tool, method or strategy that can evolve an apathetic and disconnected student into the position of a lifelong learner filled with curiosity and desire to positively impact the community.

Fundamental Research Question

The author's fundamental research question focuses on the use of digital portfolios and the impact potential when entries are focused on the process of learning and the concepts outlined in Dr. Carol Dweck's theory of growth mindset (Dweck, 2016). The fundamental research question is stated as: in what ways does a digital portfolio focused on the influence of failure throughout the learning process impact 11th grade students in Family and Consumer Sciences CTE courses? Relevant literature and previous studies confirm that the research topic is broad and well suited for multiple cycles of Action Research. The primary data collected, in the form of self reported interviews, surveys and questionnaires, gives us a unique insight into the internal impact made on participating students.

Summary of the Literature Review

During the author's investigation into the impact of the growth mindset and the extension of considering failure as a development tool through students' digital portfolios, they have acquired resources that specifically relate to the inquiry. In a series of seven Systematic reviews and three Qualitative Meta-Synthesis, data has shown that the growth mindset, when documented in a digital portfolio, provides several impactful benefits for both students and adults.

According to Afrilyanti, Suhartoyo and Widiati, tenth grade students in Indonesia benefited from the use of portfolios in the areas of critical thinking, higher order thinking, communication skills and self reflection. The students studied were enrolled in English Learner courses and concentration data collection on communication and competency. Students showed an increase in speaking skills, mastery of key concepts and higher order thinking skills. The importance of self reflection and its benefit to the learning process is a theme that runs through each source and provides insight into the positive impact visible to each individual. Afrilyanti, Suhartoyo and Widiati concluded that utilizing digital portfolios to document the learning process also led to an increase in student confidence in ability (Afrilyanti, Suhartoyo and Widiati, 2025). In *Time to Reflect: e-portfolios and the Development of the Growth Mindset*, d'Erizans and Bibbo reference Dr. Carol Dweck and the advantage digital portfolios provide to post-secondary students in creating goals for their future endeavors. Students used digital portfolios for the specific purpose of documenting learning evidence in an online graduate school program. The authors suggest that by using digital portfolios to document their learning, they were able to master the skill of assessing progress over product. In addition, students were able to display a myriad of skills outside of simple academics, allowing them to present a well rounded reflection to potential schools or employers (d'Erizans and Bibbo, 2015). The study designed by Di Silvestro and Nadir focused on gathering qualitative data through interviews with students, who reported enhanced levels of satisfaction with their academic workload, as well as a deeper understanding of the concepts presented in their graduate programs. The learners in the study were able to move from reflective learning to transformative, identifying new strengths and potential areas for growth (Di Silvestro and Nadir, 2021). Fang and Mueller focused their research on adolescents and mental health, concluding that the implementation of the growth mindset also provides a sort of

buffer for emotional distress stemming from family or peers. The authors referred to the tasks given as creation of a resiliency portfolio, allowing them the opportunity to reflect on stressors in a simple documented format. They found that students who practiced a growth mindset self reported high life satisfaction, even when faced with adversity or challenges (Fang and Mueller, 2023). Authors Kilbane and Milman found that the creation of digital portfolios focusing on reflective elements was beneficial for both students and teachers, and allowed a reciprocal cycle of learning that enhanced the learning environment and allowed teachers more freedom in assessment method (Kilbane and Milman, 2017). Their study began with a participant pool of teachers learning to create a digital portfolio for documenting the learning process, as professionals and then giving these teachers the opportunity to model this skill to their students. The reciprocal cycle of learning led to stronger teacher and student relationships and increased student autonomy and ownership within the classroom.

Fuglik and Tochacek provide a global perspective as they studied a group of eighth grade students from the Czech Republic and found that digital competency skills, employability skills, and self-reflection practices were enhanced upon completion of a digital portfolio (Fuglik and Tochacek, 2019). In a similar fashion, Mogas, Alvarez and Pazos-Justo focused on groups of students from various countries after the introduction of cyberlearning stemming from the COVID-19 outbreak. Students created entries for their portfolios in diverse methods spanning from multimedia, to drawings, to written words, giving students a sense of autonomy as they begin to personalize their own learning and advocate for alternate assessments. These students were positively impacted when self-reporting using a Likert scale after the completion of their digital portfolio (Mogas, Alvarez, and Pazos-Justo, 2023). Amy Russell provided additional data points for secondary students and concluded that participants formed the increased ability to utilize higher order thinking skills, as well as critical thinking skills when guided in the creation of digital portfolios (Russell, 2018). Russell focused on student centered learning and adapted the use of portfolios to support a student centered classroom. She found that students, even at higher levels, prefer the safety of teacher-led courses, however, when pushed to create their own content, their creativity flourished. She also warned of the additional workload that portfolios can create, and advocated for using portfolios as an assessment tool to avoid overload. Wall, Higgins, Miller and Packard took on a challenging task when focusing on the use of digital portfolios in the primary classroom, however, with the use of Dialogue Bubbles, students reported an increased ability to share their views on assessments, innovations, and the learning process in general (Wall, Higgins, Miller, and Packard, 2006). In *The Role of E-Portfolios in Supporting Productive Learning*, the authors focused on the concept of productive learning, and using portfolios to create authentic learning experiences that can be documented as a learning process through the use of digital portfolios (Yang, Tai, and Ping, 2016). Productive learning includes intrinsic motivation, self management and reflection, and collaboration amongst peers. The authors concluded that the use of digital portfolios led to more authentic learning tasks where students were naturally more engaged and motivated. The students were able to take the content and apply to real life situations and cross-curricular learning. The authors also found that there was

increased retention and mastery of content when using digital portfolios to document the learning process (Yang, Tai and Ping, 2016).

Although each review or analysis presented was formed using varying demographics, geography and size of the participant pool, the results clearly show that the impact of digital portfolios to encourage a growth mindset positively affects emotional wellness, engagement, life satisfaction, deep understanding of content, and high order thinking skills. These resources highlight the importance of self reflection, documenting the process of learning as opposed to the final product, and various assessment methods based on real life application of content. Several themes were apparent in each study including the importance of quality teacher feedback, the awareness of portfolios addition to the student's workload, and assessing the portfolio in meaningful ways to ensure intrinsic motivation for students. These resources highlighted the increased evidence of student autonomy, which naturally leads to higher intrinsic motivation, greater quality of retention and application to real life contexts, and higher satisfaction with the learning process.

Study Information

The Qualitative design is well suited for this fundamental research question as the author can informally interpret data as it is collected, leading to additional research inquiries. Data collection in the form of self-reported reflections from students is pivotal in adapting assessment and instructional strategies for educators who wish to increase engagement and allow for maximum student autonomy.

The author implemented the use of digital portfolios as a means to document all stages of the learning process, specifically focusing on failure, during the four week unit titled "Baking Science" occurring during the last Quarter of the semester of the 2024-2025 school year. The study was implemented on a single campus, within the confines of a Career and Technology course, Advanced Culinary Arts, where the age range of participating students was sixteen to seventeen years old. The subjects, totaling sixteen males (57%) and twelve females (43%), who participated are currently enrolled in their Junior, or 11th grade year. The students participating in the study have previously completed two Culinary courses with mandatory e-portfolios, however, the focus of those entries did not include the learning process, but rather the final product or specific performance task as mandated in the Texas Essential Knowledge and Skills. The students participating have consistently used a digital portfolio for assessment purposes throughout the current school year, however, they will be introduced to the methods outlined in the research design in order to self-reflect on the process of learning.

Research Design

The author's research design is based on Qualitative data collection and analysis due to the narrative nature of the information obtained during the study. Qualitative design was also deemed appropriate by the author due to the unstructured nature of the research question, the ample amount of time for completion, and the broad and interpretive style of the research question. When approaching the research question, it is also apparent that there is the potential for

multiple realities constructed by varying individuals based on experience and other diverse variables.

In this qualitative study, the author will use interviews, both structured and unstructured, case studies and observational case studies as methods of data collection. The benefit of using structured interviews lies in the ability to focus the attention of the interviewee when reflecting on specific components of the study; however, due to the broad nature of the research question, it is also important to utilize unstructured interviews in order to collect as much relevant data and explore additional research questions as they arise based on these interviews. Case studies will also be utilized for data collection in the form of field notes on student behavior at essential periodic periods such as the introduction of a challenging task. Student behaviors assessed will reflect any shift in attitude, engagement, or motivation such as elopement, off task behaviors, or vocal frustrations. Unstructured observations will take place daily during the Advanced Culinary course. When possible, the author will use structured observations in order to provide a complete, focused and consistent monitoring of student behavior. In order to accomplish structured observations, one additional facilitator will serve as the observing party once weekly in alignment with final entries to the portfolio for formative assessment purposes. One additional form of data collection will be utilized in the form of surveys and questionnaires. This addition provides an opportunity for student transparency that may not be achieved when interviewed directly by facilitators. The surveys may be open ended or use a Likert scale of agreement to various statements to assess mood, attitude, and satisfaction during the study. An example of statements on the Likert scale would align with statements such as "I felt a strong sense of accomplishment as I continued to find solutions after a failure."

Data Collection and Analysis

Data will be analyzed at least twice weekly and research questions focused and adapted as needed. Surveys and questionnaires will be interpreted as self-reflection on student attitudes and engagement, while observations and interviews will be utilized as data useful for drawing conclusions on the impact of digital portfolios in broad categories of positive impact or negative impact. In addition, the author will analyze and interpret the quality of entries in the digital portfolios at the conclusion of the study using a rubric based on the quality of self reflection and the students ability to adapt to new strategies and methods.

Interviews, both structured and unstructured are documented at the conclusion of each mini lesson and applicable digital entry to their portfolio. At the onset of the research study, students will receive a Likert scale survey to fill out inquiring about student attitudes towards failure and its natural consequences. This data will be followed up with unstructured interviews to investigate the root sentiment and perception of failure as a productive stage of the learning process. At times throughout the study, the author will conduct unstructured interviews and send questionnaires in the format of google forms to collect data on any shift in attitude as exposure to failure is increased. Observation field notes will be taken daily to document student behavior as it aligns with categories such as frustration, resiliency and class satisfaction. Data collected will also be produced in the form of TEK tracking forms, where students must specify the beginning level of mastery of

essential TEKS, then in increments of one week reflect on the current level of mastery in proportion to mistakes and failures experienced. At the conclusion of the study, students will receive an opportunity for open ended writing using a prompt mirroring the fundamental research question. Students will be given ample time for reflection with open ended prompts. The final interviews will take place in an unstructured environment at the conclusion of the unit “Baking Science” and will allow the author to complete several one on one conferences to guide self reflection and data collection specific to intrinsic motivation, satisfaction measures, and overall engagement with content.

Sharing and Communicating Results

Initially, results should be furnished locally and electronically. The use of the author’s personal e-portfolio is not only an appropriate method for sharing learning, but also a means to model the purpose of the research question itself. The portfolio utilizes google sites and is not limited in audience when shareable links are provided to a broad audience. Secondly, results are shared locally in the form of Collaborative Team Meetings and immediate colleagues within the Career and Technology department. Informal presentations within Collaborative Team Meetings will allow for effective sharing of information, as well as support for those colleagues who wish to participate in future cycles of the research. Once results are shared with colleagues, the author can meet with the administration responsible for the Career and Technology department, allowing an open dialogue that may present opportunities for a larger audience.

Next steps include sharing the research information, purpose, methodology, results and conclusions with a slightly larger audience such as the district or campus. The author presents at Prosper Connects during the 2025-2026 school year, reaching an increased audience throughout campuses across the district. The author, as a member of the Career and Technology Leadership Council, will present to the CTE coordinators and instructional coaches in a professional development setting using digital resources as well as small panels for discussion. The campus Guiding Leadership Team provides another opportunity for presentation face to face during the 2025-2026 school year with the impact reaching all content areas across the campus through the specific assigned collaborative team leaders.

Finally, for a broader audience, the author will present at the FCSTAT conference for Texas educators who specialize in Career and Technology courses in the area of Family and Consumer Sciences.

Understandably, the largest audience is available through digital means such as a published and public e-portfolio. The use of e-portfolios as a method of documenting the process of professional development and learning is best addressed through digital portfolios, the very educational tool used to promote autonomy and collaboration with our students. The author not only models the use of e-portfolios for professional purposes, but is able to disseminate vital information to a broad and demographically diverse audience to dispense information on innovation in teaching strategies and alternate assessment methods.

Final Reflection

Craig Metler states that “research is simply one of many means by which human beings seek answers to questions” (Mertler, 2025, pg 7). Action Research is a crucial tool available to educators at no additional cost or training; in fact, educators are most likely informally conducting a version of Action Research in their classrooms on a consistent basis. As educators commit to the process of Action Research and begin to share their results, the potential for impact both locally and globally is immense. The benefits of Action Research include improved teaching strategies and methods, as well as enhanced campus or classroom culture and refined teacher to student relationships. The collaboration encouraged by Action Research amongst peers, as well as the empowerment achieved as educators complete their own research and apply to their profession, leads to a culture of excellence. The results of Action Research are immediate and can be applied efficiently, helping educators methodically find answers to their most challenging inquiries. Educators have applied components of Action Research for many years, most notably forms of Qualitative data collection such as observations, or Quantitative data such as numerical statistics. The practice of Action Research, especially when applied in cycles or collaboratively across teams, can truly provide a data rich atmosphere of collaboration paired with a consistent striving for improvement in every area of education. Educators have the unique ability to observe concerns or inquiries in our classrooms, develop Action Research plans, and collaborate with peers to share the collected data and resulting conclusions globally to ensure a quality education for every student. The goal of authentic learning experiences for our students is lofty, however, the opportunity to evolve our pedagogy is increased when we work as a team of professionals devoted to the care of the precious children in our classrooms.

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