The Effects of using e-Portfolios in Teaching and Learning Curriculum

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# Introduction

Learners today can demonstrate their knowledge and skills in many ways, with the introduction of educational technology and its continued advances in classrooms and curriculum, cell phones, clickers, web 2.0 tools, etc. Educators engage dual credit high school, early college, and college students by prodding open-ended statements in the form of a question. The answers provided from the question become an artifact. The artifacts are digitally created in various forms, such as audio, music, and video files from course-related work. Developing an electronic portfolio shows progress through learning competencies by selecting, collecting, reflecting, and connecting evidence into a digital portfolio, also known as an e-portfolio (Chen & Light, 2010). E-portfolios are a collection of artifacts that provides users with more meaningful evidence of learning achievements. How are e-portfolios effective in higher education? The analysis of this study will explore diverse ways e-portfolios impact assessments, higher education, and learning competencies.

# Statement of the Problem

Colleges, including freshman, sophomore, and dual credit high school students and faculty, are faced with ways to assess learning throughout coursework at these institutions. Since academic institutions are transitioning to using educational technology and online learning, e-Portfolios are a great tool to satisfy assessment and technology within the institution. In addition to some advantages of using e-portfolios, there are also challenges that colleges and faculty must consider, including cost, time, ownership of, who owns the portfolio, compatibility, portability, software platform or learning management system, and copyright issues to name a few. These are all challenges that colleges and faculty must consider before proceeding with using e-portfolios to assess students’ coursework. In addition, there are relevant and necessary considerations to be prepared for and willing to plan on when using these educational technology tools in their curriculum and dual credit high school and college coursework, certificate, and degree programs.

# Review of Related Literature

Over time, portfolio meaning evolved to education in the 1970s from the area of art, which included the introduction into higher education, where there was a shift away from standardized testing towards quality assurance with theories of learning to new research (Farrell, 2020). In addition, with the ever-growing evolution of educational technology, academic institutions were becoming more familiar with the development and use of e-portfolios. Research by Farrell (2020) established the meaning of e-portfolios through growth from the beginning as a container to hold loose papers for use in other areas and subjects of students’ academic studies. E-portfolios became a digital keeper of work done by students where faculty would teach students to choose which work should be kept and reflected on. Then students were taught how to categorize such work in these electronic repositories. Throughout academic studies, faculty have introduced into the curriculum such portfolios originally in paper format as a means for students to collect, organize, and even showcase classwork to see learning progress from the beginning to the end of specific classes. Furthermore, Farrell (2020) noted to assist students in developing individual internal reflective experts, that higher education institutions were using e-portfolios more frequently. In addition to the increased use of e-portfolios, Herring and Notar (2011) explained that the importance of e-portfolio implementation success was the need for a collaborative team effort of administration, faculty, staff, and students all requiring execution strategies and training, among other tools and resources.

To effectively manage the assessment of e-portfolios, academic evaluators were vital, Ring and Ramirez (2012) suggested, along with the discussion, implementation preparations, repetition, and time. One motivation for introducing e-portfolios into higher education academics originated from discontentment with current methods of quantitative standardized testing and a concern that this format of testing in at least some subject areas did not seem to adequately reflect what students learned in the subject matter of a given course. An alternative to this traditional method of testing, e-portfolio assessment, began to be used to assess students learning (Habib & Wittek, 2007; Lam, 2018).

Underwood and Austin (2016) stated that e-portfolio use in higher education and professional graduate programs was increasing. Also, integrated technology uses directed higher education to transition to electronic portfolios or e-portfolios as they provided user-friendly updating of artifacts and ease of sharing (Lin, 2008), among other advantages like showcasing interactive materials (Ring, Weaver, & Jones, 2009). One of the most favorable benefits of e-portfolio use was that the students determined what artifacts to include (Lorenzo & Ittleson, 2005). In addition, students were the owners of the e-portfolios and chose digitalized artifacts to showcase from each subject area throughout their academic work in higher education. According to Gadbury-Amyot and Austin (2014), with access to the internet, faculty and students could review and maintain the contents of the e-portfolios.

E-portfolio use for educators’ professional development, Guder (2013) noted that reflection transforms the collection and selection method into “one of personal growth and lifelong learning.” Professional development documentation and tracking for educators from e-portfolio use were also positive advantages. Additionally, faculty used e-portfolios to document and track various activities like volunteer work and educator training with reflections post sessions was beneficial. According to Darling-Hammond and Bransford (2005), educators should be guided and molded to be flexible experts so that they can continue to add knowledge and skills throughout their teaching careers. Finally, Scott and Kim (2015) stated that the core of the e-portfolio movement was that these tools are used to distribute authentic proof artifacts of an educator’s capability to achieve work that has meaning to the individual, employer, and others.

Learning was at the core of educational goals; there were many ways to effectively use e-portfolios as a tool that allowed users to demonstrate the learning process and the progress one achieved from primary school up throughout higher education and on to one’s professional life (Drury, 2006). However, there were concerns and advantages of using e-portfolios in higher education, like connectivity, which educational technology tools to use to collect e-portfolios, and accessibility, to name a few challenges identified through the years. Some additional challenges noted while using e-portfolios in higher education were the age of the students, the comfort with their use of technology in learning, and the age and technology skills of the educator were observed to be challenging factors. Furthermore, the educators’ readiness on various levels, including their individual technology-related skills and comfort level using technology, as well as their understanding of course design with e-portfolios, were potential obstacles (Wuetherick & Dickinson, 2015).

Often e-portfolio contexts were developed for curricular learning purposes; however, their goal was to promote lifelong learning skills (Jones & Leverenz, 2017). This format of e-portfolio by the student was used to maintain a portfolio to document their level of success, growth, and knowledge and showcase these artifacts as meaningful learning memories. Additionally, e-portfolios were used to showcase and share knowledge and skills that were documented for potential employment purposes. Career services provided important advice that graduating seniors used in job searches were effective and successful as desired (Cordie et al., 2019).

Without an institutional mandate for e-portfolios, software application platforms, shared implementation, or advocates for new technologies, one institution’s departments, schools, and faculty employed e-portfolios in silos (Paulson & Campbell, 2018). This posed a challenge in that once individual faculty adopted the use of e-portfolios for their courses and incorporated the use of a specific software application to use for e-portfolios once the course ended. The student moved forward to the next course in their sequence of degree program courses. That course instructor uses e-portfolios but uses a different software application platform. This posed trials for the students and the instructor with the choice of a software platform for e-portfolio. The instructor changed the general curriculum regarding the course content e-portfolio used. This was the primary challenge associated with e-portfolio integration and reported uses included technology and instructional implementation (Wilhelm et al., 2006).

Previously, certain e-portfolio features worsened issues in distance learning environments, stated Shepard and Bollinger (2011). Because of the students learning environment in distance learning, there were challenges with receiving support as they were working on the e-portfolio reflections and feedback, which became difficult for students. Since students experienced issues proceeding as they worked via distance learning, the instructor provided face-to-face support-centered guidance to restate the purposes of the e-portfolio and assisted students with choosing artifacts for e-portfolios and others (Wolf, Whinery, & Hagerty, 1995). E-portfolio use through online education has proved to be a challenge to students when they are often unable or unwilling to reach out for additional assistance. To help decrease communication and support problems students experience under these conditions, facilitators proceeded to provide embedded guided prompts within the e-portfolio templates (Banister, Vannatta, & Ross, 2005; Shepherd & Hannafin, 2011).

E-portfolio objectives were hindered by technology tools (Bartlett & Sherry, 2006; Shepard & Hannafin, 2011). Some students found e-portfolio use complicated as they were not technology savvy. Factors that affected students’ use of e-portfolios included their age of the student, their learning style, and their technical skills of the student. Cost of the e-portfolio platform used as well as the needed features they provided proved to be a difficulty for students. Incorporating e-portfolio tools into distance education settings exacerbated some student anxiety and reasoning demands due to limited help, various delivery tools used, and learner resources varying (Sheperd & Bollinger, 2011).

Chen and Light (2010) stated that the benefits of e-portfolios “are not limited to the final product—the ePortfolio itself—but also derive from engagement in the process of portfolio creation.” In the beginning, students were allowed to select the software platform used to create and maintain their academic e-portfolios. This was the case in higher education, where faculty used e-portfolios in their college courses. Some students used website builders like Weebly, Word Press, and Google Sites to create e-portfolios (Cote & Emmett, 2015). Ultimately when a higher education institution decided to adopt a specific software platform, they often go through a selection committee where they choose a software platform such as Foliotek or Digication. This software application selected and adopted by the higher education institution afforded students and faculty the benefit of an e-portfolio platform that was set up in the same format. Still, students and faculty used their individualized artistic creativity and customized the e-portfolios to fit their creative skills. In addition, the vendor of the e-portfolio software platform worked with the institutions and faculty to customize and personalize the e-portfolio templates that the students and classes of students will use to work with. The e-portfolio continues to be a growing and active educational technology tool that a user creates and maintains lifelong learning content to share and publish online to showcase knowledge and skills for others to view. Slepcevic-Zach and Stock (2018) stated that the construction and management of a reflective portfolio signify a challenge for learners. As modifications are made, the e-portfolio continues to be an excellent and valuable student learning tool that includes an adequate digital space to encourage and demonstrate personal and individual growth, reflection, college, student, and faculty planning, and career research (Cote & Emmett, 2015).

# Research Questions

The following research questions will be examined in this study:

1. How effective are e-portfolios in higher education?
2. What are the main advantages and benefits of e-portfolio use by colleges and teachers?
3. What are the main barriers, challenges, and constraints to e-portfolio use by colleges and teachers?

# Significance of the Study

This study might assist those in higher education, including students and faculty, to become better informed in preparation for educational technology tool choices and implementation of e-portfolio uses in curricula and might offer advantages associated with various options of educational technology tools to use when implementing e-portfolios. Additionally, it might identify challenges with e-portfolio implementation and use in higher education teaching and learning curricula. Furthermore, it might offer improved professional strategies to integrate the technology software application and curricula.

# Method

This qualitative research study was conducted to determine the effects of e-portfolios in teaching and learning integrated higher education curricula. It helped better understand the advantages and challenges of integrating educational technology tools such as e-portfolios into higher education curricula. This study included administrators, faculty, and student participants from North Texas community colleges with dual credit and early college high school students. It was assembled by multiple-choice surveys, written questionnaires, and observation journals.

## Participants.

The participant sample of educators and students was used from surrounding North Texas community college campuses. It was made up of first- and second-year students within multiple subject matter areas and included dual credit, early college high school students, made up of juniors and seniors. The community colleges used for the research consisted of seven institutions of various sizes and demographics located in and around North Texas. This qualitative study had 350 total participants that, included 300 students, 35 faculty, and 15 administrators who volunteered to complete the survey questionnaire.

The faculty, students, and administrators were chosen for this study as this research called for the above participants. This was to be done to best assist with gathering the necessary data to analyze further and draw a conclusion that would help institutions move forward to smoothly integrate educational technology tools into the curricula to optimally afford faculty and students to produce meaningful reflective e-portfolios for assessments and other types.

The sample was chosen from all the faculty and students teaching and learning in the college success courses, as the course was required for first-year students who had less than four completed college-level hours. This course was an elective for all other students. This course taught new college students the factors needed to impact learning college and succeeding as a student in college.

## Instrumentation

The first research instrument used was the informed consent form delivered to all participants by the researcher who agreed to participate in this study. The consent form was created via Microsoft Forms, where a link to the website and a quick response (QR) code for participants to access, complete, and sign via those two forms of obtaining access to the form from any device from anywhere, provided participants have access to the internet. Once that is done, then before the semester start, the researcher will observe faculty and administrators to witness the way they select the educational technology tool or software application that the students will be using during the semester with the course curriculum. The researcher will then interview the faculty and administrators with a series of interview questions regarding the methods they used to determine the e-portfolio platform that the students and faculty will work with during the upcoming courses. These interviews will be done by the researcher either face-to-face or via Microsoft Teams. The researcher will take notes from the observations and interviews. The researcher will use a predetermined set of questions and follow-up questions for the discussions. Finally, the researcher will compile, organize, and analyze the data.

# Design/Procedure

This qualitative research design method of grounded theory was used to implement the study procedures. The qualitative study included a diverse demographic representation such as age, ethnicity, academic scores, grade level, nationality, and background, to name a few. The gender ratio of females to males was 2 to 1, which participated in the study: Dual credit students (1st & 2nd-year college, ages 16 to 18), early college high school students (1st & 2nd-year college, ages 16 to 18), first-year college students (1st-year college, ages 16 to retirement ages), and sophomore college students (2nd-year college, ages 16 to retirement ages) respectively. An email was sent to these students, faculty, and administrators to invite them to participate in the research study. The email detailed the purpose and the research study. Additionally, information on collected data and what actions were expected of the participants were included. The email informed the participants of the confidentiality agreement of this study and the time set aside of completed the survey questions. Finally, faculty and administrators were also interviewed briefly that semester to examine the reasons for the choice(s) of an educational technology tool or software application selected. Furthermore, they were interviewed on the reason for the e-portfolio software platform selection they used with the students, the course curriculum, as well as any additional advantages or challenges learned throughout the term. Once the semester began, and the faculty and administrators chose and set up the educational technology tool or software platform(s) that the students in the selected course were used, the researcher monitored and observed the students and faculty as they incorporated, used, and maintained the e-portfolios into the curriculum, coursework, and assessment. As the semester ended, the researcher made it available to students via the website link, and the quick response (QR) code provided for students to access the surveys were completed. These surveys used were questions created by the researcher using the software application Microsoft Forms. Students were easily able to access the survey from any computer or mobile device, provided they had access to the internet. The individuals who participated in this research study were informed by their professors that they received extra credit points toward their overall course grades.

The answers to the completed surveys submitted by the students and faculty were compiled, organized, and put into data sets for analysis by the researcher. It was noted that participants were told any information that would potentially identify the study participants was removed. The information obtained from the observations, interviews, and surveys by all study participants helped in the process of learning more about the impact of e-portfolios use integrated into the course curriculum, as well as determining any advantages or challenges. This was done so that further study, determinations, and conclusions were recorded and placed into a final report.

# Data Analysis

The researcher collected, analyzed, and interpreted data from all study participants, including students, faculty, and administrators. Table 1 illustrated the seven campuses of the large community college district with the number of participants who were studied:

**Table 1**

*Student, Faculty, & Administrator Participants per Community College Campus*

| Participants | Students | Faculty | Administrators | Total |
| --- | --- | --- | --- | --- |
| Campus 1 | 18 | 23 | 2 | 43 |
| Campus 2 | 21 | 11 | 3 | 35 |
| Campus 3 | 17 | 13 | 6 | 36 |
| Campus 4 | 20 | 19 | 13 | 52 |
| Campus 5 | 23 | 15 | 2 | 40 |
| Campus 6 | 27 | 23 | 3 | 53 |
| Campus 7 | 48 | 13 | 5 | 66 |
| Total | 174 | 117 | 34 | 325 |

The breakdown of table 1 indicated the number of participants by type, including students, faculty, and administrators who participated in the study by campus. This shows that for each campus, there are more students who volunteered to participate versus the number of faculty and the number of administrators per campus. Also, campus 7 has the most overall participants than the other six campuses. This was in part due to campus 7 being the largest campus of the seven campuses.

Table two below listed the number of students, faculty, and administrators research participants per campus who were studied.

**Table 2**

*The Seven Community College Participant Numbers by Participant Type*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Participants | Campus 1 | Campus 2 | Campus 3 | Campus 4 | Campus 5 | Campus 6 | Campus 7 | Total |
| Students | 18 | 21 | 17 | 20 | 23 | 27 | 48 | 174 |
| Faculty | 23 | 11 | 13 | 19 | 15 | 23 | 13 | 117 |
| Administrators | 2 | 3 | 6 | 13 | 2 | 3 | 5 | 34 |
| Total | 43 | 35 | 36 | 52 | 40 | 53 | 66 | 325 |

Table 2 (see Appendix) indicated that there were 174 overall student participants, 117 faculty participants, and 34 administrator participants in this research study. Table 2 also indicated that campus 7 had the most participants in the study. Additionally, campus 7 had the largest number of student participants in the study compared to the other campus participants in the study. The number of student participants from campus 7 was almost double the number of student participants from any of the other campus student participants. Campus 1 and Campus 6 both had 23 faculty participants compared to other campuses. Campus 4 had the greatest number of administrator participants, with 13, which was significantly greater than the number of administrator participants from other campuses for this research.

Table 3 illustration showed the number of student, faculty, and administrator participants and their e-portfolios experience used in higher education.

**Table 3**

*Student, Faculty, & Administrator e-portfolio experience use in higher education*

| Participants | No E-PortfolioEver Setup | ActiveE-Portfolio Users | InactiveE-Portfolio Users | TOTALS |
| --- | --- | --- | --- | --- |
| Campus 1 |  |  |  | 43 |
| Students | 6 | 9 | 3 | 18 |
| Faculty | 4 | 11 | 8 | 23 |
| Administrators | 1 | 0 | 1 | 2 |
| Campus 2 |  |  |  | 35 |
| Students | 9 | 8 | 4 | 21 |
| Faculty | 5 | 5 | 1 | 11 |
| Administrators | 0 | 2 | 1 | 3 |
| Campus 3 |  |  |  | 36 |
| Students | 8 | 6 | 3 | 17 |
| Faculty | 2 | 7 | 4 | 13 |
| Administrators | 2 | 3 | 1 | 6 |
| Campus 4 |  |  |  | 52 |
| Students | 10 | 7 | 3 | 20 |
| Faculty | 7 | 8 | 4 | 19 |
| Administrators | 4 | 6 | 3 | 13 |
| Campus 5 |  |  |  | 40 |
| Students | 5 | 12 | 6 | 23 |
| Faculty | 3 | 8 | 4 | 15 |
| Administrators | 0 | 1 | 1 | 2 |
| Campus 6 |  |  |  | 53 |
| Students | 6 | 15 | 6 | 27 |
| Faculty | 8 | 10 | 5 | 23 |
| Administrators | 0 | 2 | 1 | 3 |
| Campus 7 |  |  |  | 66 |
| Students | 7 | 30 | 11 | 48 |
| Faculty | 2 | 9 | 2 | 13 |
| Administrators | 1 | 2 | 2 | 5 |
| TOTAL | 90 | 161 | 74 | 325 |

Table 3 was broken down by the number of student, faculty, and administrator participants versus their individual e-portfolio usage experienced. Campus 1 showed that there were 9 students who were active e-portfolio users, and there were 11 faculty e-portfolio users. There were no administrator active e-portfolio users from campus 1. Campus 2 showed that there were 8 students and 5 faculty, and 2administratorsr active e-portfolio users. Of 17 student participants at campus 3, there were 6 active e-portfolio users, and half of the 6 administrator participants had active e-portfolio users. Campus 4 indicated that of 20 student participants, there were 10 students who had never used e-portfolios, and there were 8 faculty and 6 administrators who had active e-portfolio uses. There were 12 student participants who reported active e-portfolio uses at campus 5. There were 8 faculty and 1 administrator active e-portfolio users reported from campus 5. Campus 7 indicated that there were 15 students and 10 faculty active e-portfolio users, while there were 2 administrators using e-portfolios. Finally, campus 7 indicated that there were 30 student active e-portfolio users, with 9 faculty and 2 administrators active e-portfolio users.

# Research Methods Report # 1

## Correlational Design

A correlational research study seeks to explore relationships between variables, and there can be two or more, as well as scores. This study does not depend on experimentation, including controlling and manipulating the variables. One uses this type of research design to forecast an outcome and how these outcomes differ from each other. Also, in this research, a researcher can use a variable to predict the outcome or score of another variable. Correlation studies deliver vital statistics about what research moving forward would be necessary to explore variables revealed to be associated with the results or characteristics previously studied (Curtis, Comiskey, C., & Dempsey, O. 2016). To ensure quality survey design of correlation study, there are vital steps to implement, and these steps begin with making a claim or creating a hypothesis. The next step involves selecting a data collection process and once established, collecting the data for the study. Once the data is collected, compile and analyze the data to determine the study’s results. Finally, it is often essential to perform further research for the study. Actions that are important to help increase participant response rates include providing incentives and keeping the study applicable, relevant, and brief.

Additionally, choosing the appropriate time to conduct the study and selecting the right audience while providing multiple avenues for participants to receive and participate in the research often includes gentle reminders or nudges. Make sure to communicate the importance of survey participation to the prospective participants. Ensure the study uses intuitive and ease-to-follow technology platforms that can be used from multiple computers and mobile devices for participants. Correlation studies seek to view relationships. For example, students who get a good night’s sleep tend to perform better on school exams. It does not show how or why these are related, but they are related. Another example is that children who play violent video games tend to exhibit aggressive behavior.

## Causal-Comparative Design

A Causal-comparative study investigates the contributing relationship between a dependent and an independent variable. This is a type of research study that is done after the fact. Additionally, this research determines the cause or significance of variances occurring among two or more variables or groups. Often it is difficult or impossible to manipulate conditions, so an advantage of this study type is to investigate the cause-and-effect relationships. Causal-comparative research is advantageous when determining if one variable in a study of two or more groups is the direct causal influence. Rumrill (2004) stated that these studies compare variances between influential or whole groups on theory-driven dependent measures. Another advantage to this method of research is that it affords the researchers artificial reproducing scenarios, which saves resources and time. This type of research does not involve ethical dilemmas; study one independent variable where the researcher does not manipulate the variable.

Furthermore, these causal-comparative studies allow researchers to check retrospectively.

There are some disadvantages to using causal-comparative research, including the researchers’ lack of control. Often obtaining conclusive study results necessitate repeating trials. Also, securing study results is, in most settings, indecisive or uncertain at most. One of the most challenging issues with using causal-comparative design studies is the randomization of subjects to numerous groups. The researcher must locate the groups that are already formed can be trying.

To ensure quality survey design of correlation study, there are vital steps to implement, and this type of study begins with articulating the problem. The next step involves selecting the groups of subjects to study. The next step includes selecting the instrumentation for the analysis, which may consist of questionnaires, interviews, devices for observing, and others. This research method seeks to compare a cause-effect relationship between two or more subjects.

An example of a causal-comparative research scenario would be how an individual’s weight affects their coping skills with daily life stressors. Or another scenario is how does time affect the age of an individual?

## Experimental Design

Experimental design studies research possible cause and effect, usually comparing two or more groups. Knight 2010 stated that research or experimental design affords a much more significant role than just defining and guiding the statistical analysis of an experiment. There are variables in these types of studies, including dependent and independent. It is advantageous to conduct experimental design research when seeking to make forecasts and draw conclusions on a subject area. These studies are performed when the researcher seeks to control variances or differences or to provide research question answers.

Like any other method of research study, experimental design has advantages and disadvantages. Such benefits include the researchers’ control over variables; due to this method of research, there is the ease in determining cause and effect. Also, due to the specific set up of controls and the strict conditions placed on the study, the results of experimentation are improved when repeated experiments are obtained and inspecting results over again.

Conducting experimental design studies often takes more time to perform, which can be a disadvantage. Also, raising outlooks during experimental studies may interfere with post-test scores. Other disadvantages include human or instrumentation errors, personal biases, obtaining inadequate samples, costs, and the ability of researchers to impact a variable of the experiment such that consequences are observed. Experimental design guides the investigation by arranging data gathering, explains the statistical analysis of the resultant data, and leads to the explanation of the results (Knight, 2010).

The experimental design seeks to determine if one variable causes another variable. For example, the garage door opener at my home would not close the door, so my husband went outside, visually observed or inspected the garage door opener, and attempted to close and open the garage door with the various remotes. They all were working properly, but the garage door would not close. Next, he inspected the garage door itself and the garage door rails and motor. Upon viewing these parts closely, he noticed that one of the garage door opener rails had vibrated loose away from the garage wall. So next, he used the remote to close the garage door while observing the loosened garage door rail. He noticed that once the garage door got halfway down, the railing on that loosened side and the garage door rail began to vibrate, which caused the garage door to stop and then open again. Next, my husband used a clamp to keep the loose garage door rail from shaking, and then he closed the garage again using the remote. The garage door completely closed all the way successfully. In conclusion, what we thought was the occasional garage door opener sensor obstructed. After experimenting with the variables of the garage door system, we determined that the loosened garage door rail caused the garage door opener not to close the garage.

## Survey Design

Survey research studies are advantageous when a researcher seeks to collect an extensive set of information in a short time. This method is easy to conduct a research study and is quick. Survey studies are often administered to gather population data so that information on the population can be obtained like opinions, personal facts, attitudes, income, sex, religion, ethnicity, or other characteristic statistics. Also, survey design is good to use when seeking to explore trends in populations and subpopulations.

There are benefits of this method of research consisting of collecting a large amount of data in a short time, and the cost of conducting research is minimal compared to other study methods. Surveys can be completed online through various mobile devices and made available to participants from a large and broad demographic. Also, surveys are generated quickly, and they are administered easily. Surveys can collect data for compiling information on various topics, opinions, personal facts, behaviors, and attitudes.

There are some weaknesses to using surveys to do research. One disadvantage is that sometimes there may be technical difficulties that hinder the investigation. Also, there can be biases like a social attraction where a participant may not be completely forthcoming with an answer to a health question, and they report better health than they are. Likewise, a survey is only as good as the researcher who created it, where the survey design needs to be revised and generate the necessary data to analyze, report and conclude the optimal research intended. Survey design can involve nonresponse prejudice reporting as well. Additionally, when conducting web surveys, fewer response rates might lead toward nonresponse partiality (Sauermann & Roach 2013).

Using questionnaires may be problematic as they do not provide for namelessness, some questionnaires involve training the people administering them, and these people who administer the questions could influence answers. This may affect the legitimacy of survey results regardless of the sample size (Sauermann & Roach 2013). Sauermann and Roach (2010) noted that it is necessary to comprehend better web survey response conduct and change techniques to increase web survey return rates.

## Mixed-Methods Design

Mixed-methods research design is unique in integrating both qualitative and quantitative studies to help the researcher get a more comprehensive picture. This study is usually conducted when qualitative or quantitative studies alone are less thorough. Mixed-methods research is advantageous to use when you want another perspective or when you want to practice the newest study approach. This research design is also good to use when having access to qualitative and quantitative data as well. Mixed-methods research attracts from the strengths collectively of qualitative and quantitative approaches in addition to providing an innovative approach to examining contemporary issues in health care, for example (Fetters, Curry, & Creswell, 2013).

Advantages occur in the mixed-method design, and this type of study combines strengths of both forms, qualitative and quantitative research. Another benefit is that the validity of the study increases. Mixed-method research is also reliable, which can provide more confidence in the findings. Furthermore, this method offers to cancel out the disadvantages.

The mixed study methods are not without disadvantages; one potential is that this design is expensive. Mixed-method studies are time-consuming to administer. Also, the study methods must be complementary, and the skills required to analyze both sets of data from the research being done can be a limitation. Furthermore, the flexibility integral in mixed methods research can result in a more all-inclusive and accurate understanding of the studied subjects (Ponterotto, Mathew, & Raughley, 2013).

There are essential steps to make sure of quality mixed method design. First, decide if this research method is appropriate and indicated, including skills, knowledge, time, and audience consideration. Next, determine the motivation and purpose, which includes being clear, reviewing intentions, and reasons for collecting both qualitative and quantitative data. Select the most suitable design strategy and methods for data collection before collecting data from both designs and choosing the proper order of data collection. Next, create research questions for mixed-method questions. Collect the quantitative and qualitative data while following outlined laborious procedures. Analyze data collected as it relates to the research design, which may include separate, integrated, or both analysis processes. Following the analysis, write the report in the possible integrated and multi-staged studies in the appropriate writing structure.

# Research Methods Report # 2

## Quantitative Design

Quantitative research studies are techniques, approaches, and expectations used to study various areas, including events and categories. This research explores these areas using patterns, trends, and relationships to collect data. It is easier to comprehend quantitative research data. The scientific method is the structure when using a quantitative design process. Researchers form a hypothesis and collect data to investigate the problem. The data collected is then used to analyze and draw conclusions about the study for the researcher. The conclusions drawn are used to prove or disprove the hypothesis. Quantitative data is measurable, and it is objective in nature. This method of research is based on likelihood or probability (Creswell & Guetterman, 2019).

There are several design methods of quantitative research. These methods include descriptive, correlational, experimental, and quasi-experimental. Quantitative analysis is used to measure variables or test broad explanations. This research method is also used to assess the effects of variables on outcomes or even apply results to many individuals or large sample sizes (Creswell & Guetterman, 2019).

When conducting quantitative studies, the researchers may use either independent or dependent variables (Creswell & Guetterman, 2019). An independent variable is the one that is being manipulated in the study. During some studies, this variable is referred to as the “predictor” or even the “treatment” variable. This research method is objective because there is minimal room to argue using numbers. There are numerous reasons that quantitative research is conducted exploratory studies, descriptive studies, clinical trials, predictive research, experimental research, or descriptive studies. Also, another example of quantitative analysis where there is a randomized trial research study. It is possible to combine quantitative and qualitative methods. However, great care should be taken to ensure that the theory behind each technique is compatible and that the processes are being used for appropriate reasons (Hammarberg et al., 2016).

## Qualitative Design

Qualitative research is used to discover a problem by comprehensively understanding phenomena. The research purposes and questions of this study method are specified in an open-ended manner. Data collected for this research comes from small numbers of individuals and in the way of words. The data is analyzed using text to gather descriptive and detailed themes. Once information is analyzed, the researcher generates the results in a report through supple and developing structured assemblies. Qualitative research uses focus groups or interviews, and the sample size is small. Using qualitative research, the researchers determine the intentions or meanings through subjective manners (Creswell & Guetterman, 2019).

There are numerous methods of qualitative studies historical method, case studies, phenomenology, ethnography, and grounded theory. This research and quantitative studies utilize observations and interviewing methods. Also, these qualitative and quantitative research studies include introductions. These introductions set up the research question and its imperativeness. The reporting process of qualitative study is flexible in nature. The analysis of this research includes images and text. Qualitative research is used to research problems to measure over time and learn about individuals you plan to do the research on. In addition, it is conducted to gather comprehensive information on research locations or even individuals, and it produces theories based on subject viewpoints. Using small sample sizes of data allows the researchers to gain a more in-depth comprehension of the analyzed findings through the study. With qualitative research, researchers can begin with the findings used to analyze the study’s data to explain the results (Creswell & Guetterman, 2019).

## Narrative Design

The qualitative method, narrative design, is used to write narratives and tell stories about individuals and groups of individuals. Investigating histories denotes using stories as data, which are conventionally analyzed using specific measures for qualitative information or motific study (Benson, 2014). These narratives are collections of stories, documents, and even conversations and focus on various purposes, such as learning more about a specific person and conferring the intentions of the actions of the person. Narrative research is used when people want to be heard and are ready to tell their stories. Also, researchers conduct this method of analysis when the researchers want to bond with individuals who participate and seek to report people’s experiences in a particular setting (Creswell & Guetterman, 2019).

Additionally, researchers use the narrative method when they wish to study and report in a scholarly and influential format (Creswell & Guetterman, 2019). Examples of studies in narrative design are biography, history of one’s life, spoken history, and autobiography, Cowger and Tritz (2021) stated that this approach to research in narrative design could be combined with other data analysis methods.

Characteristics of narrative research account for the order of events of an individual or collections of individuals (Creswell & Guetterman, 2019). The research is conducted methodically. Research idea connections may be consistent with this method of qualitative research. The transcript of a recorded interview conducted by the researcher is a crucial attribute of narrative design. Then, taking the transcript and recognizing critical parts of the story in the study, including characters, actions, and issues, of the outcome, are also crucial components of this study method (Creswell & Guetterman, 2019). Narrative research methods are conducted surrounded by the system within tri-dimensional parameters, including the continuum of time as previously, current, and eventually, locality, and synergy (Creswell & Guetterman, 2019). Also, a researcher may conduct this method design or several subtypes of narrative studies for dissimilar purposes (Smith & Monforte, 2020).

An example of a narrative research scenario would be if an individual wrote a narrative description of the story of another individual’s life. The researcher would write about the person’s story from beginning to end, or if the individual had been through a significant life-altering event such as 9/11 and the researcher wrote a chronological account of this person’s event and post-event life. This account may be digitally recorded by the person of interest, and the narrator then transcribes the taped story of the individual into a book. The person who is the subject of the narrative study has previously approved of this research and works with the researcher to express the story of the person’s life.

## Ethnographic Design

This qualitative research method of ethnographical design is conducted by witnessing, relaying, examining, and rendering a culture-sharing group (Creswell & Guetterman, 2019). This is performed on the group’s beliefs, behaviors, and language over time. This research design is used when there is a culture-sharing group to research or to comprehend a more significant issue from the group studied (Creswell & Guetterman, 2019). An ethnographic study is often used when the objective is to understand a culture and to ready or describe its verbal and nonverbal nature to individuals who are not part of the culture (Grossoehme, 2014). This study design is also used to determine a day-to-day picture of those events or when the researcher has access long-term to the group and their behaviors and beliefs (Creswell & Guetterman, 2019).

Ethnographical methods are critical in nature (Creswell & Guetterman, 2019). Researchers who may conduct critical ethnographic studies include challenges of the status quo, those concerned about control and power, worth-burdened positioning, those who look to empower others, supporters against disparities, politically motivated, and others. The traits of ethnographical studies include the investigation experiences, groups of cultural nature, explanations, motifs, and the researcher’s reflectiveness. Other attributes may be a situation, scenario, climate, behavior arrangements, dialect, and faith of individuals or groups (Creswell & Guetterman, 2019). Such ethnographic events would then contain multiple sensual meetings with others in addition to how these individuals experience those individuals’ societal surroundings (Low, 2015). Ethnographic researchers occasionally need specific skills to get near and comprehend the sensation they study (Creswell & Guetterman, 2019). They should keep a distance (Aspers & Corte, 2021).

A scenario of an ethnographical study could be to research the social norms at a place of employment like a restaurant. The researcher would study the norms of the employees at work when the boss is there. Then the researcher would look at the norms of the workers at work when the supervisor is not there with them. This is one such example of an ethnographical study where the two above behaviors of the restaurant employees are compared through meticulous interviewing and observation of the workers and their social norms within that restaurant.

## Case Study Design

A case study is a method of research that examines a system in-depth. Some examples of the subjects studied through this method include individuals, events, activities, and developments. This method of qualitative study may concentrate on different and various belongings. The in-depth examination of a surrounding system may include individuals, events, processes, or activities. Occasionally case study involves reviewing more than one case. In such instances, it is often good to choose a cross-case analysis after initially studying each case individually (Creswell & Guetterman, 2019).

The case study method of research can offer further understanding of what gaps exist in its distribution or why one implementation approach may be chosen over another (Crowe et al., 2011). In the case of the study, researchers read all the data thoroughly to seek understanding from the Study. Qualitative research is conducted on a small scale and includes investigations that pursue to be all-inclusive and studied in its appropriate setting (Creswell & Guetterman, 2019). The intention of using the case study is to get thorough specifics as much as possible about people, events, or processes (Njie & Asimiran, 2014).

Qualitative case studies research includes several types: collective case study, instrumental case study, and intrinsic study (Creswell & Guetterman, 2019). An intrinsic case study is a research method involving unusual cases or cases. An intrinsic case study is a research method unique in characteristics, and the case by itself is being examined. The subject or individual alone is the focus of this study method and is to discuss a more thorough understanding of that subject or individual. An instrumental case study is conducted and seeks to comprehend more than what was initially observed or evident. This type of case study aims to investigate a singularity outside the rudiments of the research. The collective case study is a qualitative method of analysis that studies a series of case studies to establish a new research study that includes the joint assembly of case studies (Creswell & Guetterman, 2019).

A case study scenario in real life could be to research the Respiratory Syncytial Virus (RSV) that is prevalent during this fall season. This would be a great case study because it relates to current events. To conduct this study, the researcher would need to first seek approval from the hospital or location where the research will be done. Determining the number of individual cases of children who are infected with this virus is an important step in the plans. Also, the researcher looks for the principal individual to allow for access. Secure necessities for the study site, collect the data from various sources such as observations, documents, interviews etcetera (Creswell & Guetterman, 2019). Once the data from the collection is completed for the study, the researcher examines the information so that the researcher can gain an overall understanding of the issue of the children being struck with RSV. Once the investigator gains a better understanding, a conclusion is drawn, and a report is written with specific findings. The sick children with RSV, this case study will help researchers and physicians gain a more meaningful grasp of this virus so that physicians can become better equipped to treat the numerous children who are ill.

## Action Research versus Formal Research

Action research is a method of research that examines an area of study to take action to improve or make better the area of interest being studied. Action research is indicated when there is a problem in education that needs to be investigated to resolve the academic issue or when there are academic institution problems. Action research is also advantageous when an educator wants to examine the educator’s educational practices to improve the educator’s teaching pedagogy. Occasionally educators may desire to participate in research projects of this type and often in collaboration (Creswell & Guetterman, 2019).

Some possible ethical dilemmas with action research that may hinder the outcome of the research results and benefits. There can be a lack of close connections that are caring, a conflict of interest with the educator being the researcher as well in the study, or data collection contamination that is coercive in nature. In addition, not thinking the research all the way through clearly before beginning the study survey looking at how the research outcomes will be used, and not including individuals to participate in every phase of the survey can hinder the validity of the use of action research (Creswell & Guetterman, 2019).

Formal research is a method of research that investigates systematically and scientifically the area of study. The advantage of formal research is the convenience of the research methods for the participants. Researchers can compare and rank systems with study results, which is advantageous. Some disadvantages to conducting formal research methods are the costs of the study, limitations of who participates, the time needed to complete this method of analysis, and the work and meticulous detail and labor-intensive procedures of the researchers to conduct formal research (Creswell & Guetterman, 2019).

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# Appendix