

Enabling Students with Disabilities with Computing Interaction and Empowerment through Enhanced Strategic Instructional Course Design

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Abstract: As more technology changes the learning environment for educators, this has caused a greater need for instructors need to focus on the syllabus, subject content, administrative tasks, and students with varying learning styles, they may also need to address various learning style of students with disabilities. As more universities provide teacher training, the training may not be detailed enough to help instructors be prepared to work with classroom accommodations for students with disabilities. In particular, online instructors have another factor to work with in this situation, they have to work with students with disabilities virtually and offer similar or comparable accommodations. More educational institutions are seeing that more students are enrolling in online programs and courses, and they realize that there may be some additional barriers to learning in terms of this learning environment's technical process and structure. In particular, students with disabilities are enrolling even more with online courses with the hopes of a barrier-free environment. Thus, there are still some barriers still present in the learning environment in terms of technical/software application or interaction/communication problems. The purpose of this paper will be to look at how a university can address such problems and develop/create virtual solutions to these barriers by incorporating the help of others in the online community to brainstorm methods of inquiry and build virtual strategies. In particular, there needs to be a special emphasis given to online instructors to become better prepared and trained with technology in terms of structure and how to motivate all types of students, especially students with disabilities, to become more interactive online. While there is a growing need for more human computer interaction, rather than just selecting and clicking single choices, students with disabilities are finding technology to be more enabling than disabling at times. Consequently, universities need to design and develop training programs to help educate and train current and potential instructors in the areas of disability awareness, virtual classroom accommodations for students with disabilities, as well as to create strategies for better learning opportunities for these students. The key focus with this training program would be to create better strategies to help increase better human computing opportunities for all types of students. Even though many instructors may not be facilitating learning for this particular population at this time, the virtual learning environment is starting to attract more students with disabilities with a growing need to help them become more successful in their educational endeavors. Finally, this presentation will help to offer more insight as to the role and function of instructors in meeting the needs of students with disabilities.

Keywords: Accessibility, disability, virtual learning, interaction, teacher training, human computing

1. Introduction

People with disabilities have long been underrepresented in the workplace and the educational system due to various barriers they have encountered in their lives. While organizations and companies have made strides in employing workers with disabilities as an act of social responsibility, other entities have started to realize the need and value of this untapped human resource (Thakker, 1997). In addition, research has shown that employees with disabilities have low turnover rates, low absenteeism, and high motivation to prove themselves (Fersh & Thomas, 1993). Thus, executives will need to rethink their employment practices in order to compete for employees from the current, shrinking workforce. As the workforce has become smaller due to the retirement of the Baby Boomers, there is a growing need for a more educated workforce to operate the growing amount of technology used in the workforce. While many people have rallied for changes in the way computer software and hardware operate for all people, especially people with disabilities, there are still some concerns for this group's ability to have more accessibility and need for more human interaction.

Traditionally, many employers have relied on the assistance of academic institutions to help provide for them well-qualified job candidates. However, we need to reexamine whether educational institutions are still able today to enable, educate, and motivate all learners for the many changes in the workforce. In particular, are they able to equip all learners with the necessary technological skills and education to best prepare them for this new workforce outlook? Currently, 54 million Americans with disabilities use information technology (IT) at colleges and universities, which accounts for 20 percent of the population (Oblinger & Ruby, 2004).

Consequently, this will help to set the backdrop for this paper in understanding what has been problems for students with disabilities and whether or not if technology can help to break down some of these barriers (whether visible or invisible). For many centuries, education has been focused on the learning of course content, but the learning styles of the students have been ignored . As Knowles (1987) noted that “everyone [learners] should be able to participate and control their own learning process.” While most of the academic approaches have been centered on the mastery of course content knowledge, not all learners learn in the same way. As a result, different teaching techniques, strategies, and tools may be needed to help all students acquire, understand, and apply learning gained from the course content.

Thus, this leads to a larger question as to whether or not e-Learning can fill this void in helping to focus on the learning style and skills needed by learners, especially students with disabilities (Barrett, 1999). There are some obstacles or barriers in education that do prevent students with disabilities from succeeding in both the face-to-face and online learning environments, especially in certain courses. The focus of this paper will be on how accessibility to e-Learning, as a method of new computer teaching technology, can be used as a strategic tool to help overcome some of these barriers. In particular, this paper will approach the main research question of “how accessibility and human computer interaction can help to engage and motivate students with disabilities through more computer empowerment” in today’s learning environments?” This newer form of engagement can be used as one way to linking modern day technology to learning content knowledge, as well as offering a more barrier-free learning environment.

As a result, this focus will look at the strategies used at one major U.S. virtual university system and how they are strengthening their use of human computing interaction and best practices to help motivate all students, especially addressing the needs of students with disabilities. Further, this paper will the literature to determine how the need to use e-Learning as a strategic tool to help engage and enrich the learning opportunities for students with disabilities. It is important that this particular student population be engaged with a variety of e-Learning applications to help students with disabilities to become more familiar and empowered to interact more with the computer technology and participate at a higher level in the online learning environment.

In particular, the paper will center its focus on the current need to use e-Learning, as another mode of instruction. It will also look at this type human computing interaction as a strategic tool for breaking down current educational barriers faced by students with disabilities in educational institutions. In the following section, there will be an overview of the current statistics of people with disabilities in the United States, along with an overview of distance education, which will also be referred to as e-Learning in this paper.

2. Disability statistics overview

Statistics helps one to understand what the current picture of a situation in order to consider what might need to be done in order to change the current outlook. This will provide a baseline for the reader to understand why instructors need to consider why students with disabilities are fighting not only barriers in the workplace, but also in the realm of academia. Before looking at the statistics in the U.S., we need to look at the global perspective. According to United Nations Enable, “The United Nations estimates that 650 million people around the world are disabled, about 10 percent of the world's population.” (para.1). Besides looking at the U.S. statistics, we need to consider a larger global perspectives since many online learning courses enroll students from many global locations. Hudson (2005) reported the following:

The incidence of disabilities (and limiting illness) that restricts a person’s ability to function in everyday life, as recorded by government agencies in some countries:

- United Kingdom, 18% of the population (National Statistics, 2001).
- Australia, 17% of the population (Australian Bureau of Statistics, 2003).
- United States, 19.3% of the population (US Census Bureau, 2000).
- Canada, 12.1% of the population (Statistics Canada, 2001).
- New Zealand, 20% of the population (Statistics New Zealand, 2001).

- European Union, across the 15 EU countries in 2001, 19.3% of the population was hampered by physical or mental health problem, illness or disability, with 9.3% severely hampered. (Eurostat, 2003) (Hudson, 2005).

Considering the above statistics, we can see that there are a certain percentage of these global populations that have people with disabilities that can benefit from the use of more accessibility to online learning and computer technology/interaction. According to several resources, the following statistics about the employment of people of disabilities was noted: "The total number of people with disabilities aged 16-64 is 33,153,211, [of which], the total number employed is 18,525,862. The percent of people with disabilities aged 16-64 employed is 55.8" (Census, 2000, para. 4-6). These reports show that "18.6 million people disabilities employed aged 16-64, 60.1% of men with disabilities are employed, and 51.4% of women with disabilities are employed" (Census, 2000, para. 7). Thus, these statistics demonstrate that there is still a disparity between the employment rates of people with disabilities versus their able counterparts. Consequently, one way of changing these employment figures may be the use of technology and how it is offered and facilitated with people with disabilities (Disability Status 2000, Census 2000 Summary File #3; and Census 2000 Brief (March 2003) (C2KBR-17)).

While there is still a disparity between the employment rates of people with disabilities versus their able counterparts, one way of changing these employment figures may be the use of technology and how it is offered and facilitated with people with disabilities. If more students with disabilities focus on obtaining higher education, they may start to make a movement towards online education in light of physical classrooms. In this transition to a new learning venue (environment), they still anticipate the change with some level of apprehension, along with a certain amount of anxiety. Therefore, it is important for online administrative and instructional staff to focus on building virtual trust for these learners.

3. Distance/Virtual Education in Today's Learning Environment

For the purposes of this paper, the term distance education and virtual learning may be used interchangeably for the same referencing of learning with computer technology in the context of understanding more about the use of technology and human computing interaction. Neal and Miller (2006) defined distance education as "education that takes place independent of location, in contrast to education delivered solely in the classroom, and that may be independent of time as well (para. 4). ASTD, an education/training & development professional organization, noted that "distance education can be characterized as an educational situation in which the instructor and students are separated by time, location, or both. Education or training courses can be delivered to remote locations via synchronous or asynchronous means of instruction (Neal & Miller, 2006, para. 5). Thus, we need to consider what is the role of technology for changing learning and promoting diversity and including more students with disabilities, as well as whether or not this this new technology offer a change for them?

4. Learning and Technology Advancements in Virtual Learning Environments

Technology has made a major emphasis on learning in today's adult learners. As a result, adult learners must have a different type of skills sets in order to compete in today's online learning environment and workplace. Academic institutions must design, develop, implement different practices and procedures in order to prepare all students, especially students with disabilities, to compete for quality and meaningful employment. Thus, this paper helps to provide an open forum for the reader and others to determine if there is a need for change. If so, it also provides a chance for further research to be conducted to help examine how various schools of business, both traditional and online, can approach the career development segment of their course offerings and programs.

As more technology has become available in many parts of the globe, a new type of student population has emerged. While the traditional student image of higher learning has been somewhat limited in many countries, but given the impact of the Internet, this traditional "student body" has transitioned over to online learning environments (online learning communities). According to Preece (2000), these online communities "consists of people who interact socially as they strive to satisfy their own needs or perform special roles; a shared purpose that provides a reason for the community; policies that guide people's interactions; and computer systems to support and mediate social interaction and facilitate a sense of togetherness" (p. 10). In the fields of education, business, and management, many educators have recognized the demographical changes of the student population. As a result, technology today has provided a powerful infrastructure, the

emerging technologies have allowed educational institutions, educators, and students to achieve education on a much higher playing field – in a virtual learning environment. Thus, more students with disabilities are enrolling in online courses. One reason for this increase in online enrollment is due to online learning environment allowing for more barrier-free opportunities to education for students with disabilities.

5. The Role and Impact of Online Instructors in Today's Learning Environment

Over the past two decades, educational reform has started to make changes in the classroom, along with the many technological improvements and changes to learning in general. Educators have started to see instructional methods moving from a sheet of paper to the computer screen. The role and function of these instructors has changed with the introduction and placement of personal computers in the classroom. As more technology to appear in the educational environment, schools started to find that computers had many different qualities. They had a larger storage capacity; were cheaper to purchase; easier software was being developed to navigate; students were starting to learn computers at an earlier age; and adaptation of course materials to the computer environment was being made easier for instructors.

In light of these many technological advances, schools systems still had to face other problems due to poor planning and constraining budgets. As the number of computers was limited in the classroom, it also had an impact on the number of users with the computers. In addition to budgetary problems, sometimes there was a limited use of software licenses due to the amount of budgetary investment. This limited training given to some instructors did impact how many students would receive quality technological instruction. While the focus on the instructor may be of a primary importance, we have to consider another key problem. Not all of this type of technology has been fully accessible for students with disabilities. Finally, not all instructors were trained to teach students with certain types of disabilities wishing to learn and operate computers and various computer software packages. These problems were only a representation of why some school systems sought additional funding to increase e-Learning opportunities for all students.

We need to consider the key fact here that E-learning is not for all students. For students with disabilities, these many facets or approaches that e-Learning offered more opportunities than ever before. For example, visual learners were able to benefit from applications in PowerPoint and Flash Multi-Media technology. Auditory learners could benefit from online classrooms with auditory lectures, Podcasts for students, as well as live chats. From a blended-approach perspective, some online programs offer both auditory lectures, as well as PowerPoint slide presentations. Also, live chats (both auditory and visual – i.e., Elluminate, Horizon Wimba, etc) offer more opportunities for a variety of learners. Thus, this leads us to another question for consideration. How can we train instructors to become more accessible with technology and help bridge the learning gap for new online learners, especially students with disabilities with assistive technology requests? First, we have to motivate our instructors to become more “computer literate” and want to use more technology in the classroom. Second, we need to show these instructors how to use various types of technology to achieve learning objectives in the online learning environment. Finally, we need to help instructors to learn different ways, approaches, techniques, and strategies to help motivate students with disabilities to use these new technologies and use it for more interaction. While not all instructors are educated or trained to work with students with disabilities, the use of technology can be quite helpful in this educational mission in order to bring this student population and instructor (and overall class) closer together during the learning process. During this time, it is important to focus on the building of trust to help engage the student with disability and to help encourage them to take advantage of this new technology.

6. Building trust during the learning process

It is important to focus on establishing and nurturing trust early on with the learning process, it can help all stakeholders involved in a learning organization to move forward rather than “freezing” or “unfreezing” during critical moments in their development, as noted by Lewin (Kaminski, 2011). However, not all instructors are willing to spend additional time and resources for trust, but later learn the importance of this key strategic element. We can see that the concept of trust has many meanings, but for this paper there will be a focus on trust in the context of swift trust. ChangingMinds.org (2010) focused on swift trust and how it affects certain groups and organizations. They stated that “Sometimes there is no time to build a trusting relationship, such as when group of people are thrown together and must start work immediately” (para. 4). As people are thrown together into a temporary setting, they may quickly organize and develop a temporary system in order to function as a group and meet their immediate needs (i.e., job duties, tasks, etc.). While in some educational

institutions classes are large or a variety of learners are placed in learning environments with barriers, the use of online learning has helped to change some of these learning impediments and help encourage more people to return back to education.

7. Course Preparation and Strategic Planning

Can instructors find other ways to motivate students to seek additional resources and ways of preparing course assignments and projects during the learning process? Why is this important to the students and instructors? While an instructor's key goal is to teach the course content, what happens if he or she also motivates the students along the way to want to discover and inquire more on their own? Therefore, if an instructor wants to carry the same momentum from the live classroom setting into the world of online learning, there are several areas to consider, as noted below. Also, during the instructional period, the instructor needs to determine the level and extent that all students achieve in terms of mastering the learning objectives for the course. One way that online instructors can help changed the level of learning, quality of instructions, and adapting the course material for all types of learning styles is by assisting with the creating and design of the learning course. It should be noted that not all online schools permit instructors to design and develop courses, but many do encourage the use of additional teaching and learning materials. Finally, selected assessment activities of student learning can be done in terms of live chats, discussion threads, assignments, quizzes/exams, and/or projects. In order to consider such items within a course design, one needs to look at key areas to incorporate each of these items.

8. Impact of Teaching Strategies, Tools, and Techniques

Not all teaching tools work or apply in all given learning environments. However, as some teaching tools may be viewed effective in one learning environment, they may not be as successful in another type of learning situation. Therefore, since each environment is unique, as well as the learners in it, the educator needs to assess their online environment and determine if change is necessary currently or for later. However, not all educators may be as flexible in their teaching method, and they may not be willing to change. This leads us to the next question for exploration. Do educators incorporate different teaching strategies and techniques to meet the ever-changing needs of these virtual learners in terms of learning from their cultural differences in order to enhance the learning experiences of all? Further, can these instructors also address the changing learning needs of all adult learners, especially people with disabilities? Therefore, this type of learning environment has helped to break down a few of the barriers as previously discussed in this paper. Also, this new type of learning environment has helped to "level" the playing field, in which students can act, react, and be proactive in the learning process. White (2002) noted "Nowhere is thinking more evident than in the textual environment of the online classroom. If writing is thinking, then online students display their thinking throughout the course, illustrating their individual styles and changing attitudes" (p. 6). Consequently, educators can incorporate various strategies to help draw upon the experiences of all class members – rather than just a select few. This helps to demonstrate the beauty of online learning – because online learning is a continuous process (not limited to a set time and place as a traditional course is scheduled).

The creativity and innovative ways of teaching must also continue to change. Educators and course designers need to enhance and modify their online programs. While many educators will agree that learning concepts, principles, and theories are necessary in establishing a good foundation of learning in any course, this may not be enough to reach all of the learning needs of today's online learners. While these educators may have a challenging position of motivating and keeping the attention of young learners, we can also see the same problem with adult learners. It is important to note here that the challenges that online instructors may face in motivating and keeping the attention of virtual learners when there are issues of differences in generational learning, time zone challenges, technology skills, and perceptions of course value.

As we look at the various evolutionary steps of technology in today's learning environment, we can see how it has influenced the diminishing workforce. If we look at the impact of changes in the workplace, we can see some impacts as a result. This may have caused many human resource professionals to search for information and ideas on best practices in human capital management (Fitz-enz, 1997). Thus, these changes in technologies have occurred in the workplace, as well as changes in the various federal, state, and local laws, and there has been a shift from these changes to human problems, especially behaviorally, one can see on the individual group, and organization levels. Chin and Benne (1969) discussed this shift to the human problems as "dealing with the resistance, anxieties, threats to morale, conflicts, disrupted interpersonal communications, and so on, which prospective changes in patterns of practice evoke in the people affected by the change" (p.

94). Therefore, those individuals involved in technological and human asset management work as “change agents” to help facilitate change in terms of best practices.

Fitz-enz (1997) described best practices as: “an enduring commitment to a set of basic beliefs, traits, and operating stratagems. These are the guidelines for an organization: the driving forces that distinguish it from all others” (p. 98). In early 1990, The Saratoga Institute conducted a formal research project on common traits of the best human asset management companies. The question that they used over and over with each participant was, “Who is good at _____?” The identified eight factors that appeared constantly in their study as: “1) value; 2) commitment; 3) culture; 4) communication; 5) partnering; 6) collaboration; 7) innovation and risk; and 8) competitive passion” (Fitz-enz, 1997, p. 100). This Institute wanted to find out what was being done better in each of these factor areas. The study was to help them to identify what was being done right and if it was part of the individual’s interaction with their organizational culture. Thus, as many people have researched and interviewed others to learn more about best practices, the educational arena has had to work even hard to develop, create, implement, and share best practices with others in order to help improve upon the current approach to online learning and teaching. While we can many reasons why most online instructors may have to “rethink” and “reevaluate” their teaching approaches, strategies, and techniques, the fact remains that students with disabilities need a different approach by their instructors to help motivate and encourage them to use this new technology in order to improve their possibilities for equal and better educational opportunities.

9. e-Learning as a Strategic Tool for Diversity Awareness and Accommodations

Besides being a strategic tool for learning, e-Learning offers a good platform for educating students, faculty, and administrators in the areas of diversity awareness and accommodation. The following list represents how e-Learning can be used to help educate all users.

- E-Learning is a technological tool, as well as a tool for learning and socialization.
- E-Learning can be used to educate not just one group of learners – but many others.
- E-Learning can help to promote “diversity awareness.”
- E-Learning can help to accommodate learners with disabilities and accommodate the needs of instructors and educational institutions.
- Is E-Learning at its prime or still in its infancy stage in terms of helping all types of learners?
- Can e-Learning help to break down barriers and be used as a tool to increase our knowledge base by including the viewpoints of a more, diversified group of learners?
- Finally, is e-Learning a strategic approach that benefits business more than education?

We need to realize that adult learners have different learning styles, as so do teachers have different teaching styles. Further, what happens when a student with a disability takes a course where the instructor is not prepared to accommodate the student’s particular disability? In the United States, the passage of the Americans with Disabilities Act of 1990 (ADA) changed many factors affecting the lives of persons with disabilities. In particular, it mandated that in field of education, changes had to be made to accommodate the needs and rights of persons with disabilities. Even though this federal mandate has been in effect for more than two decades, some universities and their instructors still have not brought their courses up to par. Further, this paper will provide some suggestions and recommendations to help educators and trainers to improve upon their strategies for teaching online course. For illustration purposes, the next section will focus on the discussion of various potential research courses strategies.

10. Proposed Research Course Strategies

Whether an instructor teaches live, Face-to-Face (F2F) courses or online courses, they can use a variety of methods to teach all students. However, not all students learn or think in the same way. RIT (2010) noted some generalizations about adult learners and their thinking styles and characteristics in the following chart:

Thinking Styles	Characteristics
Reflective Thinkers	<ul style="list-style-type: none"> • view new information subjectively • relate new information to past experiences • often ask "why?" • examine their feelings about what they are learning
Creative Thinkers	<ul style="list-style-type: none"> • like to play with new information • always ask "why?" • make excellent troubleshooters • create their own solutions and shortcuts
Practical Thinkers	<ul style="list-style-type: none"> • want factual information without any "nice-to-know" additions • seek the simplest, most efficient way to do their work • not satisfied until they know how to apply their new skills to their job or other interest
Conceptual Thinkers	<ul style="list-style-type: none"> • accept new information only after seeing the big picture • want to know how things work, not just the final outcome • learn the concepts that are presented but also want to know the related concepts that may not have been included (p. 3).

It is important that instructors contemplate the various thinking (learning) styles, as discussed above, along with considering the needs of students with different learning needs, it is important for instructors teaching research methods to consider different approaches in teaching course content. Take a moment and consider how each of these thinking styles may affect the way a learner made consider each topic in a research method course. If one considers how researchers operate, do they all conduct research in the same manner? No, each researcher has their own unique style and approach of conducting, analyzing, and reporting research. As a result, one needs to think of ways to present material in different formats in order to reach all learners.

Why is this important? In light of the many technological improvements over the past several decades, research has become more accessible for many people. While an instructor’s key goal is to teach the course content, what happens if he or she also motivates the students along the way to want to discover and inquire more on their own? Therefore, if a teacher wants to carry the same momentum from the live classroom setting into the world of online learning, there are several areas to accomplish this, as noted below.

Zhu, Payette, DeZure (2006) noted several areas of consideration when one is creating an online course: 1) course content; 2) delivery of instruction; 3) communication and interaction; 4) student time spent on learning tasks; and 5) assessment of student learning. The course content will remain the same, but the delivery of instruction will be given either synchronous or asynchronous learning formats. Instead of live discussion in a physical classroom, the discussion/dialogue will be done in a chat session, discussion thread, and/or video session. The student’s participation in the course will depend on the learning format, as designed. Finally, assessment of student learning can be done in terms of live chats, discussion threads, assignments, quizzes/exams, and/or projects. In order to consider such items within a course design, one needs to look at key areas to incorporate each of these items.

Consequently, Salmon (2000) offered a five-step model that focuses on interaction between students and students and their instructors in terms of the quality and intensity of their interactions.

- Step 1 - Access & Motivation
- Step 2 – Online Socialisation
- Step 3 – Information Exchange
- Step 4 – Knowledge Construction
- Step 5 – Development

The next section will look at how these five steps above can be used in an online research methods course. In the following section, each of these steps are discussed, along with the previous research methods questions discussed earlier highlighting topics covered in the author's research methods course.

Step 1 - Access & Motivation. One objective to good interaction in a research class is discussion and contact.

Strategy: How to encourage more access and motivation? An instructor could develop a PowerPoint Presentation (PPT) to help overview the concept of research. Not all students will read the first chapter of any textbook or required readings, but rather they will skim the material until they realize "what they need to know." Also, in a class setting, there could be students with learning disabilities (i.e., dyslexia, dysgraphia, dyscalculia, dyspraxia, non-verbal learning disorder, etc.) (DO-IT, 2010).

Step 2 – Online Socialisation. Students may be slow at times to interact, unless they are required or if something "captures their interests." While many people have argued about the loss of socialization in the online learning environment, many instructors have focused on this particular area. Irwin and Berg (2006) wrote that "Socialization is about people being able to mingle and establish connections on one or more levels. They speak [with] one another; share ideas and information and confirm the connections made through an agreed upon means." (para. 3).

Strategy: What is socialization? The first main discussion should be based on what is research. It is important to determine a baseline of what the students know now, perhaps in a form of a type of pre-assessment. Since some students may freeze up with the term "assessment," a general discussion with probing questions inserted along the way by the instructor can help to assess the general knowledge of the class. In many classes, there are students with identified or undeclared disabilities. In order to help them participate and offer more insight into this area, an instructor could focus on disability in general or a particular disability as they illustrate a research methods concept.

Step 3 – Information Exchange. During this phase, the students need to know how to look at problem situation and determine the factors affecting the person(s), situation(s), event(s) and/or location(s). It is during this time that the instructor can play a major role to involve all students – and focus on their learning styles.

Strategy: How is research collected? In order to meet the learning of various learners in the course, it is recommended that the instructor offer PowerPoint Presentations, audio lectures, as well as text-based documents. Why? Some students are more auditory than others. If one has a student who is legally blind, then an audio component would be helpful. However, one could have a person who hard of hearing or deaf, so a text-based component would be beneficial. If the student cannot receive the proper instruction, how can they be successful in the course?

Strategy: How to organize and sort data? The same learning activities, as noted above, are helpful in the discussion of the organization and sorting of data. However, here is another dimension that has to be considered. Some statistics programs are more oriented for the student without certain types of disabilities than for a student with a given disability. Therefore, it is a good idea for the instructor and course designer to consider possible changes in the course learning activities, should a student need an accommodation in the classroom.

Step 4 – Knowledge Construction. How research is used and how it is approached is important in this process. While some students may be more auditory than others, there will also be visual, kinesthetic, and environmental learners (further discussion will be held later on this topic).

Strategy: How is research analyzed? As discussed in the previous strategies, the methodology taught by the instructor and used by the student is important. Depending on the student's learning style, the use of various learning activities and methods of teaching will either help enhance or detract from the learning experience. One way that an instructor can try to figure out what works or needs to be changed in the course is to do a quick needs assessment. This can be done by asking the students what type of learning they preferred. Some will want more visual activities, and others may want auditory tools for learning. On the other hand, some will want a mixture. A quick way to view this is research methods in general. Some instructors and schools prefer the use of qualitative versus quantitative research methods, but some like a mixed design. As a result, this approach is a good way to start the discussion and help the instructor to learn more about his or her learners.

Step 5 – Development. The final part of any course is the development of the final project and connection to all components of the course at this stage. As noted in the above strategies, it is the intent of the course to cover all course objectives, provide learning activities, as well as offering a final assignment, project or exam in which the instructor can assess the final level of learning for students.

Strategy: How is research organized and written up? This is one area that many instructors will argue or agree upon – the format for writing up research. In many cases, the final decision is a report. However, for students with short attention spans (ADD, ADHD, etc.), the paper format might be a challenge. Therefore, the teacher might assign a slide presentation in lieu of the paper (but with the same APA style requirements). For a student with a sight disability, a recorded presentation might be a different approach, but with the option for the instructor to question the student about various aspects of the research methodology and data analysis. While this does seem to be more work for the instructor, rather he or she will be able to give some variety in evaluating the work of a student with a disability.

As noted in the above paragraphs, these strategies are currently used in several American universities and colleges. In particular, these practices are helpful with students facing challenging courses, such as a research methods course. While students may appear to be having challenges in the normal course of the term, there is yet another problem. While this is typical for all students – the issue of trust versus mistrust is a key factor here. Why? Well, students, especially with students with disabilities, may have an underlying fear of the online learning environment. Take a moment and consider the history of most adult learners. During their early years of formal education, they have attended some type of formal learning environment. The thought of changing this routine over to one of a computer being logged into a virtual classroom may be daunting for many. Thus, herein lies with one of the main factors that have caused students to avoid online courses – or to be very cautious going into a virtual learning environment. The following section will discuss in more detail about various trust and mistrust concerns held by adult learners.

11. Conclusion

In consideration of the key points noted in this paper, we have to consider several final questions. How and when do instructors start to help motivate students with disabilities with the use of technology? Do they hope that technology will provide the necessary motivation or should they be more socially present to help ensure the motivation is there and continues throughout the learning process? While overviewing the concepts of disability, learning, and technology, we do need to think further about the role and function of e-learning for the student with disabilities, as well as the instructor. Can E-Learning be used as a strategic tool for students with disabilities and encourage them to become more interactive with the course technology and achieve even higher levels of course interaction in terms of participation and use of computer technology? Yes, they can, but educational institutions may need to rethink how they present material and in what types of software applications they may offer their students to help motivate them to become more “involved” with the course, course members, and instructor. Further, e-Learning has provided many unique and creative opportunities for instructors and learners to learn and grow from each other's personal and professional experiences. As more students with disabilities enroll in online programs, more educational institutions are noting a growing need to train more instructors to learn additional computer technology, increase teacher educational offerings, as well as helping them to learn new methods and strategies for motivating online student participation and human computing interaction.

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