

Effects of Bal-A-Vis-X on Student Focus and Performance

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Introduction

The most effective classrooms are those where there is an environment of novelty, motivation and engagement. It is this environment where the greatest growth in learning is possible. When a student is fully engaged, his brain is better able to focus, process information, and enhance performance. As educators, it should be our priority to see that this environment exists. One of the most effective ways to ensure that this positive environment is present, is to incorporate movement into the classroom. Movement helps students' brains awaken and become fully equipped to absorb and process information.

When learning is taking place in an environment where a skill is being taught, movement becomes more important than ever. When both sides of the brain are engaged, focus is heightened, hand-eye coordination is maximized, and performance is at its peak. One of the most effective techniques in movement designed specifically for focus, coordination, and performance is Bal-A-Vis-X; a system of exercises designed by Bill Hubert.

Purpose Statement

The purpose of this study was to examine the effects of implementing Bal-A-Vis-X into the Introduction to Business Communication course. The introductory phase of this course involves keyboard review, technique enhancement, and data entry improvement. After teaching students a variety of Bal-A-Vis-X exercises, the goal was for students to improve their overall focus and keyboarding data entry efficiency. Guiding the design of the study were the following questions:

1. How will implementing Bal-A-Vis-X improve student motivation in keyboarding?
2. How will implementing Bal-A-Vis-X improve student focus?

3. How will implementing Bal-A-Vis-X improve overall student keyboarding efficiency?

Importance of the Study

The findings of this study will be of value to both students and educators as it will determine whether implementing Bal-A-Vis-X as a tool in the classroom is beneficial. This will be determined through improvement in student motivation, focus, and overall performance in keyboarding ability. Most importantly, if students become more confident in their keyboarding ability, they will be motivated to continue to progress, consequently improving their performance in this area.

Definition of Terms

Bal-A-Vis-X. A series of **B**alance/**A**uditory/**V**ision/**eX**ercises deeply rooted in rhythm requiring full-body coordination and focused attention (Hubert, 2001).

Timed Writings. Paragraphs designed specifically to measure an individual's speed and accuracy when typing for a designated period of time.

Visual Tracking. Following and recording the movement of a person's eyes horizontally or vertically.

WPM. Words per minute; used after a number to indicate typing speed.

Review of Literature

Most teachers, regardless of grade level, have found that student engagement and focus improve when movement is incorporated into their daily routine. Without this movement, student's minds drift, their bodies become fidgety, and overall attention is severely lacking. Unfortunately, students are going to class with bodies that are less prepared to learn than ever before. With sensory systems not quite working right, they are asked to sit and pay attention. Students naturally start fidgeting in order to get the movement their body so desperately needs and is not getting enough of to "turn their brain on." What happens when students start fidgeting? We ask them to sit still and pay attention; therefore, their brain goes back to "sleep" (Hanscom, 2014). So what is it about movement that can reverse these conditions and improve the attributes so crucial to optimal learning? More importantly, what specific movement is most conducive to student learning? Hubert (2007) recognized this need as he observed his students over the years. As he watched his students daily, he noticed the same deficiencies and struggles: inability to control eyes, inability to focus attention, inability to sit or stand without moving, stiff/locked posture while sitting, standing, walking, running, difficulty in distinguishing left from right, and mental and/or physical apathy. It was through his observations that he eventually designed the Bal-A-Vis-X program for improving student focus and learning. Some of the major benefits of movement, and specifically Bal-A-Vis-X in the classroom, that will be discussed in this review include:

1. Movement increases attention span and focus on a single task thereby enhancing learning.
2. Visual tracking ability and reading fluency increase with movement.
3. Tension and stress can be reduced through movement.

4. Self-confidence and self-worth improve with movement.

Movement increases attention span and focus on a single task thereby enhancing learning.

“Movement enhances learning on three levels: first it readies the mind-set to improve alertness, attention, and motivation; second, it prepares and encourages nerve cells to bind to one another, which is the cellular basis for logging in new information; and third, it spurs the development of new nerve cells from stem cells in the hippocampus” (Ratey, 2008, p. 53).

“Every learning situation basically deals with the same steps: sensory input, integration, assimilation, and action. Simple integrative cross lateral movements which focus on sensory activation and balance, facilitate each step of the process by waking up the body/mind system, and bringing it to learning readiness” (Hannafor, 2005, p. 125).

Bal-A-Vis-X is the program which Bill Hubert designed to address the specific movement needed to truly achieve enhanced learning. Bal-A-Vis-X is a series of **Balance/Auditory/Vision eXercises** of varied complexity, most of which are deeply rooted in rhythm. These exercises require full-body coordination and focused attention (Hubert, 2001). Through incorporating his program into his own classroom using bags and balls, Hubert found a multitude of improvements. The remarkable, unlooked-for bonus from the use of the balls was that attention spans lengthened. His students enjoyed the exercises very much and they willingly spent so much focused time mastering the exercises, that their attention span improvements were transferred to other classroom activities (Hubert, 2001).

Mike Kuczala and James McCall (2011) write that infusing movement into instruction is a very effective tool for student learning because learning becomes student-centered and active, which in turn causes students to be more engaged and retain concepts on a much deeper level. Knowing that students can become easily distracted, bored, and disconnected throughout the day

is one more compelling reason to be sure that students are engaged through movement. Using movement thoughtfully and purposefully in all areas provides a valuable opportunity to create powerful learning experiences. The brain is attracted to novelty and is programmed to notice differences. Therefore, using creative and innovative strategies that incorporate movement into instruction allows the brain to stay connected for longer periods of time. The brain also wants the body to move. The brain is stimulated and learns naturally through the movement of its own body (Kuczala & McCall, 2011). Moving experientially promotes an engaging classroom environment which ultimately enhances the learning environment.

Visual tracking ability and reading fluency increase with movement.

Visual tracking, the ability to move the eye in varied directions, is a skill most take for granted. This is not the case for all students. When visual tracking difficulties exist, reading, understanding, and learning become extremely difficult.

“Vision is very much a bodily function. In an active learning situation, the external eye muscles are constantly moving the eyes up and down, side to side, and all around. When our eyes stop moving, as with staring, visual input stops. When you stare, you miss what is happening. When the body and head move, the vestibular system is activated, and the eye muscles strengthen as they move in response. The more the eyes move, the more the muscles of both eyes work together. Efficient eye teaming enables the student to focus, track and concentrate when reading” (Hannaford, 2005, p. 115).

Bal-A-Vis-X exercises address tracking deficiencies, establish parameters of behavior, and incorporate rhythm in every aspect. These are the three components of Bal-A-Vis-X for anyone of any age with any issue (Hubert, 2014). Hubert reports that over time, the results of the

Bal-A-Vis-X process were very predictable. The six benefits appeared almost without fault in this order:

1. Common visual tracking glitches disappeared or became markedly improved.
2. Skipping words while reading and losing place while copying diminished.
3. Visual and auditory distractibility diminished.
4. Anxiety and perfectionism diminished.
5. Impulsivity diminished.
6. Physical competence with exercises led students to social confidence which led to earned self-esteem (Hubert, 2014, p. 54).

Hubert states “Where the eyes go, the attention goes. If you can’t control your eyes, your eyes will “control” you, usually wreaking havoc with your ability to attend to what you need to do and learn” (2007, p. 234). According to Hubert, all Bal-A-Vis-X exercises can potentially eliminate tracking deficiencies which many times is all that is required for a struggling student to turn things around (2007, p. 235).

Before implementing Bal-A-Vis-X exercises, Hubert recommends all students be tested for their level of visual tracking. He has developed a Vision Tracking Scale which determines the degree of visual tracking ability (2007 p. 236) (See Appendix A for more information on the Visual Tracking Scale).

Tension and stress can be reduced through movement.

There is no question that students today are dealing with more stress than ever before. Many of the factors affecting student stress are out of the educator’s control because they are related to what goes on in the students’ home life. Unstable homes, lack of parental supervision, poor nutrition, abuse, violent television, and video games are all contributors to student stress.

Unfortunately, many educators do not realize the magnitude of issues their students must deal with on a day-to-day basis just to survive. Add the stress and tension some students feel when unable to focus and perform to their best ability in the classroom, and you have a recipe for an unhappy, unproductive, and uncooperative student. Students who must deal with a great amount of stress in their lives can develop inadequate neural pathways which form the foundations for new learning, reasoning, and creativity (Hannaford, 2005).

Movement is one of the most simplistic strategies educators can incorporate in their daily routine to assist all students with the stress they are dealing with no matter how great or small. This is further supported by research that emphasizes a focus on implicit learning tasks. The capacity for implicit learning is supported by the ability of the learner to retain knowledge through multiple and diverse movement experiences. Closely connected to motivation, therefore, is also the emotional brain/body state of the learner (Kuczala & McCall, 2011).

Movement including play, recess, beanbag and ball routines, and the like, are essential for many brain-based, biological reasons including reducing and/or eliminating tension and stress. It allows learners to make mistakes without feeling that stress or tension they may feel in the classroom environment. It also improves the ability to handle stress by “training” the body to recover faster from the quick surges of adrenaline sometimes associated with classroom environments (Jensen, 1998).

Ratey states that “Exercise is really for the brain, not the body. It affects mood, vitality, alertness and feelings of well-being” (2008). Research shows that muscular activities including coordinated, balanced movements, appear to stimulate the production of neurotrophins such as dopamine, natural substances that stimulate the growth of existing nerve cells and increase the number of new nerve cells, and neural connections in the brain. As we learn and master

movements and skills, our brains require less energy and function more efficiently, all contributing to less stress and tension (Hannaford, 2005).

Self-confidence and self-worth improve with movement.

One of the benefits as a result of incorporating movement into the classroom that is probably most surprising, is that students' self-confidence and self-worth improves. Hubert (2014) found that the self-confidence/self-worth factor appeared as the sixth result (of the six total results) to appear through his Bal-A-Vis-X regimen of exercises. "*Physical competence* with exercises led students to *social confidence* led to *earned self-esteem* led to a *dawning awareness* that competence in anything might be possible".

Hubert believes that because of the gains students experience in hand-eye coordination due to the exercises, growth in overall confidence and self-esteem are readily observable. Some of the evidence from Hubert's first year of incorporating Bal-A-Vis-X into his classroom included the following:

1. "Shawn was attending regularly and even speaking up in class discussion once in a while"
2. "Christopher became a class leader. His innovations in the lab carried over into the classroom"
3. "Ashley emerged from utter silence to become a periodic chatterbox. She progressed from non- to willing participant"
4. "Justin abandoned his usual refusal to complete assignments. His history grade reached the B range"

5. “Tamara became a legend. Her academic performance enabled her to move into another class. By year’s end her long hair no longer purposefully covered her face, her slumped posture was erect, her smile, radiant” (Hubert, 2001, pp. 21-22).

When students experience worth and confidence in themselves, a natural side effect is that they are more willing to participate in classroom activities and discussions. Additionally, the entire classroom environment becomes more cohesive, enticing, inviting and interesting. Students are ready to learn! Kuczala and McCall (2011) believe that creating a positive class environment supports academic achievement as well as social and emotional health. When students participate in experiential cooperative activities, they develop cooperative team building skills.

Jensen (1998) also believes in the power of movement and how it promotes self-confidence and self-worth. He believes that movement breaks are an effective cognitive strategy because it not only strengthens learning, it improves memory and retrieval, and it also enhances learner motivation and morale. His theory is that too many educators dismiss the power of movement once students are out of the elementary grades. Movement should be infused into all classrooms because the relationship between movement and learning is extremely strong and emotions are also part of the mix. Educators can no longer place movement, emotion, and thinking into separate “compartments”. Many students feel awkward when they want to move around or express emotions when teachers want them to sit, be quiet and learn. Educators would see their classrooms grow by leaps and bounds once they realize that what their students are experiencing is a healthy integration of mind and body. That healthy integration of mind and body is the foundation for a student to experience positive self-worth and self-confidence.

Conclusion

This review of literature has shown that movement in the classroom is critical for students to be able to experience their full potential as learners. Not only does movement increase attention span and focus, but ultimately enhances the entire learning experience. Additionally, students' visual tracking ability is improved with movement which increases reading fluency, particularly through the use of Bal-A-Vis-X exercises. When movement in the classroom is incorporated, there is a marked decrease in tension and stress for students, improving their self-confidence and self-worth. Forcing students to remain deskbound is counterproductive to the learning process. The evidence presented should compel educators to make time for movement activities in their classroom. Educators owe this opportunity to their students not only for their learning now, but for all their learning experiences in the future.

Methodology

Participants

In October 2015, the researcher requested permission to study 21 students on the effects of implementing Bal-A-Vis-X in her Introduction to Business Communication course. Twenty one students and their parents, or 100%, approved of the data collection. The subjects were ninth grade students ranging in age from 14 to 16 years old. The group consisted of 12 girls and 9 boys. The students involved in the study included 18 Caucasian, and 3 Hispanic. Of the 21 students, 3 were identified as Special Education. The students in the focus group were selected randomly out of the four sections of Introduction to Business Communication (ITBC) taught by the researcher during the 2015-2016 school year.

The larger setting was a rural public Junior-Senior High School in the Midwest region of the United States comprised of seventh through twelfth grade. The total high school population was 288 students, with 46% in the Low Socioeconomic Status, 4% were identified as English

Language Learners and 10% were identified as Special Education students. Student Mobility or migrant student population was 6%.

Materials

A letter of permission to conduct the study was signed by the administrator (Appendix B) and a permission letter was sent to parents and students (Appendix C). Data was collected from students using student surveys, timed writing assessments, Bal-A-Vis-X routines, timed writing charts, and field notes. Prior to a complete keyboard review and before implementing the Bal-A-Vis-X routines, each student completed four baseline timed writings to determine their entry-level abilities. The students also completed a survey on their interests and attitudes regarding keyboarding before the study began (Appendix D). The same timed writings and interest surveys were administered at the conclusion of the study. Throughout the study, students logged their timed writing results including speed and accuracy in order to track their progress (Appendix E). The researcher also completed field notes consisting of any observations before, during, and after the implementation of the Bal-A-Vis-X routines, along with the corresponding dates (Appendix F). Students completed post surveys following each of the three Bal-A-Vis-X studies (Appendix G).

Procedures

This study took place over a 12-week time period which began on September 4, 2015, and concluded on December 7, 2015. Data was collected from students using a confidential process administered by the researcher. The researcher administered the first survey during the first week of the school year. The initial survey involving student interest in keyboarding improvement, took approximately three minutes to complete. The researcher then conducted the

baseline one-minute timed writings on September 4, 2015, using the program, “Keyboarding Online”.

The subjects involved in this study met every other day during a 51-minute class period. Following the completion of the letter (A-Z) keyboard review, approximately four weeks following the initial timed writings, the researcher conducted another series of three, one-minute timed writings on November 9, 2015, again using the “Keyboarding Online” program. Results of these timed writings were recorded on the subjects’ timing charts. After these timed writings, the subjects began their first experience using the Bal-A-Vis-X routines. Following the completion of the Bal-A-Vis-X routines, another series of three, one-minute timed writings were then completed. This schedule continued every fourth class period for the following four weeks to track student progress. While the group involved in the study continued this routine, the other three sections of ITBC took the same timed writings, but without the implementation of the Bal-A-Vis-X routines. The results were recorded for the three sections not implementing the routines in the same manner as the class that was implementing the routines.

Also, during the study, the researcher continued to record field notes on all four sections of ITBC, concerning the subjects’ ability to use correct keyboarding technique including posture, hand placement, and eyes on copy. These notes were recorded over the course of the study including once before the implementation of the routines and twice following. These notes encompassed a four-week time period.

At the conclusion of the study, the researcher re-administered the initial online one-minute timed writings and survey with each student. The purpose was to determine each student’s current level of motivation, enthusiasm, and skill level in the areas of keyboarding speed, accuracy, and overall efficiency. Each survey took approximately three minutes to

complete, while the timed writings took approximately six minutes to complete including four minutes (involving four one-minute timed writings) and two minutes to record their results.

Analysis

The researcher organized the data collection materials and identified themes and patterns. Data analysis was used for all quantitative data, which included baseline one-minute timed writings, one-minute pre-testing timed writings during the experiment time frame, and one-minute post-testing timed writings. Inductive analysis was used for all qualitative data, which included student interviews and researcher field notes.

Correlations were made among the keyboarding speed and accuracy ability levels recorded prior, during, and following the implementation of the Bal-A-Vis-X routines. The researcher used this data to determine if the implementation of Bal-A-Vis-X routines resulted in an overall improvement in keyboarding speed and accuracy scores. Correlations were also made between the pre- and post-surveys completed by the subjects involved in the study. These surveys were instrumental in determining if student attitudes about keyboarding improved, following the implementation of Bal-A-Vis-X routines. Other quantitative data included results of three keyboarding technique evaluations administered by the researcher. These observations helped determine if the Bal-A-Vis-X routines resulted in increased focus which ultimately improved posture, technique and eyes on copy.

Findings

The researcher's main question in this study was: How will the implementation of Bal-A-Vis-X routines affect student focus and performance on timed-writing speed and accuracy? Data was collected to answer the following sub-questions:

- How will implementing Bal-A-Vis-X improve student motivation in keyboarding?

- How will implementing Bal-A-Vis-X improve student focus?
- How will implementing Bal-A-Vis-X improve overall student keyboarding efficiency?

Using student surveys, timed writing assessments, Bal-A-Vis-X routines, timed writing charts, and field notes, the data shows patterns in student motivation, focus, and keyboarding technique and efficiency.

Impact on Student Motivation in Keyboarding

At both the beginning and end of the study, students completed a keyboarding interest inventory to determine their enthusiasm in building their data entry speed, data entry accuracy, and in becoming a better typist overall. (see Figure 1).

Figure 1. Keyboarding Interest Inventory Results

Keyboarding Attitudes	Pre	Post	Growth
Are you interested in improving your data entry speed?	14 (66%)	20 (95%)	+6 (+29%)
Are you interested in improving your data entry accuracy?	12 (57%)	18 (86%)	+6 (+29%)
Are you interested in becoming a better typist overall?	13 (62%)	21 (100%)	+8 (+62%)

Figure 1 indicates students' positive interest increased in the areas of improving data entry speed, data entry accuracy, and in becoming a better typist overall.

The researcher also conducted post surveys following each Bal-A-Vis-X experience to not only determine students' overall results, but also their thoughts about their performance. (see Figures 2-4).

Figure 2. Post Bal-A-Vis-X Student Responses-November 9, 2015.

Student Number	How did you feel about your results today?	What factors caused you to feel this way?	How do you believe today's experience could have been improved?	Comments
1	I typed a lot faster than usual.	My fingers were moving faster than usual.	We could have done more Bal-A-Vis-X routines.	We should do this every day!
2	Fantastic!	Movement.	It was perfect.	No comment.
3	I feel really good, my typing speed increased.	My typing speed increased.	It went very good, we just need to get better at the routines.	No comment.
4	They got better.	My words per minute got better.	It was fine as is.	No comment.
5	I feel it really helps when we do Bal-A-Vis-X.	These routines improve our typing.	Do Bal-A-Vis-X more.	No comment.
6	It made me type faster!	My speed went up by four words.	I can't think of anything.	No comment.
7	I feel good about my scores.	The exercises made me feel relaxed.	We can improve over time.	No comment.
8	I thought it was weird at first, but it is a cool way to help us type better.	My speed went up by 9 words!	My fingers were a bit cold from the cold gym.	We should do this every day!
9	I felt like I could have done better, but I'm glad I only had one error.	I usually am a slower typer.	If I knew my keys a little better.	No comment.
10	I think that the Bal-A-Vis-X made a lot of difference in making a better score.	My typing speed increased and my errors decreased.	Doing it more for a longer time.	No comment.
11	I felt like I have accomplished something.	Good.	It couldn't have.	I really like to take the time to do it; it helps relieve stress.
12	I felt good and it was	I like it because	I think it was best it	No

	interesting.	it is fun.	could be.	comment.
13	I expected to improve my typing score, but I didn't.	I think it was because it was cold in the gym and it made my fingers cold.	I feel like we should have done it longer and the gym shouldn't be so cold.	No comment
14	Student absent.	N/A	N/A	N/A
15	I don't really feel that it helped that much.	I do not think I did it long enough.	Maybe by doing the routines a little longer.	No comment.
16	I felt like I was doing better, but I didn't change my speed.	I feel like I was more energized because I got up and moved around and didn't get bored.	I felt like it was good the way it was.	No comment.
17	Good. It helped my hands and eyes coordinate better.	It helped me coordinate my hands and eyes.	I need to have less errors when I am typing.	No comment.
18	I feel good because my speed got better.	My speed got faster afterward than it was before.	It couldn't have.	It was kind of weird at first, but it was fun and it helped me.
19	I could have done better, but overall it went good.	I improved by one word, but felt I could have done better.	By focusing more.	No comment.
20	Good, because my typing results improved.	It feels good knowing that I can do better at typing.	Maybe doing the Bal-A-Vis-X longer.	No comment.
21	I didn't like my results, hopefully next time is better.	My hands felt fidgety and were not in sync with my brain.	I had arm day in weights the period before, so my arms were exhausted.	No comment.

Figure 2 shows that 16 out of 20 students, or 80%, had positive remarks about how they felt about their results. Figure 2 also indicates that 17 out of 20, or 85%, of the students believe that the Bal-A-Vis-X routines were a positive factor toward their overall performance results.

Figure 3. Post Bal-A-Vis-X Student Responses-November 25, 2015.

Student Number	How did you feel about your results today?	What factors caused you to feel this way?	How do you believe today's experience could have been improved?	Comments
1	Student absent.	N/A	N/A	N/A
2	It felt good.	It was fun.	Getting better.	I think this is a very good idea. I can't wait to do more.
3	Good results, even though they were not a personal best.	I'm still doing better.	Learn some new routines.	No comment.
4	My results were better.	My timing speed.	No improvements.	No comment.
5	It really helps when we do Bal-A-Vis-X!	I like it and it helps me improve.	Do Bal-A-Vis-X more.	I love Bal-A-Vis-X!
6	I am typing faster.	The scores.	If I could type faster.	It's fun and effective.
7	I could do better.	I just believe I can do better.	Better focus.	No comment.
8	My errors went up and my times went down this time.	Just not a good day.	I still enjoyed it and was focused.	I really like doing Bal-A-Vis-X.
9	Proud!	I don't usually get into the 40's!	Could have moved a little faster, but I was scared to make mistakes.	No comment.
10	I did better than last time.	I got a higher timing.	Doing it longer or focusing more.	No comment.
11	Amazing!	My speed went up by four words.	Nothing.	No comment.
12	Mad, I can't improve! I stayed the same.	I think there was lack of focus and I got frustrated.	I would like more focus from everyone.	N/A
13	I did better.	I was really tense, but am now all loose.	No improvement.	N/A

14	Student absent.	N/A	N/A	N/A
15	Student absent.	N/A	N/A	N/A
16	I feel like I did much better.	I improved by two words.	None.	N/A
17	Student absent.	N/A	N/A	N/A
18	I felt great!	My speed hit the 60's.	No improvement.	N/A
19	I improved a lot today!	I took my time and focused more.	I could still be more confident.	N/A
20	I'm doing better with Bal-A-Vis-X.	I just feel more confident.	I have a lot of fun doing the routines with my class. It is best for me to get better at typing.	N/A
21	Not good.	My arms felt weird.	I wish I didn't have weights before this class.	N/A

Figure 3 indicates that 14 out of 18, or 78%, of the students tested had positive results and positive remarks about their experience using the Bal-A-Vis-X routines. Figure 3 also shows that 14 out of 18, or 78%, of the students believe that the Bal-A-Vis-X routines were a positive factor toward their overall performance results.

Figure 4. Post Bal-A-Vis-X Student Responses-December 7, 2015.

Student Number	How did you feel about your results today?	What factors caused you to feel this way?	How do you believe today's experience could have been improved?	Comments
1	Student absent.	N/A	N/A	N/A
2	I felt good.	It was fun.	Getting better.	I think this is a great idea; I can't wait to do more.
3	It felt great! Everything improves after we do the Bal-A-Vis-X routines.	My scores went up.	We could still use more focus from everyone.	N/A

4	Student absent.	N/A	N/A	N/A
5	I really think it helps.	It helped me improve my scores.	Do Bal-A-Vis-X more.	I just love Bal-A-Vis-X.
6	I feel like I could focus more.	My mind was wandering.	I don't think they can be improved.	No comment.
7	I believe I could have done better.	I do believe there was much better focus.	N/A	N/A
8	I did well and the Bal-A-Vis-X helped me get focused and type better.	My scores went up ten words!	I'd rather do the routines in the gym, but the smaller area resulted in better focus.	N/A
9	Good, I did better than ever.	I was more focused.	Nothing.	N/A
10	I have been getting better ever since Bal-A-Vis-X started.	My scores have improved a lot.	I think it was fine. I think the smaller area improved focus.	N/A
11	Pretty good. I improved a bit.	Better focus today.	Everyone being there.	N/A
12	I was satisfied because this was the first time I improved.	There was much more focus and people were serious.	Nothing; the smaller area helped a lot.	N/A
13	I felt really good about my results.	I did really good before, but I did even better after.	There was more focus.	I really like doing this and it helps me improve my typing.
14	I felt pretty good about it.	These routines make me not be so tense. My fingers move more freely than before.	I like the smaller area.	N/A
15	I feel like I am getting better.	I've not been doing well lately and today got back in the 30's.	Nothing; the smaller area worked better.	N/A

16	I increased my scores by a lot and it was very helpful.	I feel it went better because we were in a confined area.	I think it went well.	Thank you for doing this. Every time we do this, it helps me improve.
17	I improved a lot since the last time we did this.	I'm not looking down at the keys as much as I used to.	Nothing.	I like this activity and it's fun.
18	I felt pretty good about my scores.	My new score went up by one.	I felt we were more focused, but could still get better.	N/A
19	I improved a lot!	I really focused and concentrated.	People could have talked less.	N/A
20	Student absent.	N/A	N/A	N/A
21	Student absent.	N/A	N/A	N/A

Figure 4 shows that 15 out of 17, or 88%, of the students tested felt very positive about their experience following the Bal-A-Vis-X routines. Additionally, Figure 4 indicates that 16 out of 17, or 94%, of the students tested believe that the Bal-A-Vis-X routines were a positive factor toward their overall performance results.

Figures 2 through 4 consistently show overwhelming positive remarks in the comments column regarding their overall feelings about the Bal-A-Vis-X routines and the positive impact it had on their performance.

Impact on Student Focus

At both the beginning and end of the study, the researcher conducted an assessment of keyboarding skills. This assessment encompassed ten areas including: posture, eyes on copy, feet positioning, arms relaxed with elbows at sides, fingers curved, wrists and palms low, begins and ends all keystrokes at home row, keys using correct finger, keys using quick, snappy strokes and smooth rhythm, stays on task and uses time wisely. All ten areas assessed involved focus on the part of the student. (See Figure 5).

Figure 5. Student Focus Assessment Results.

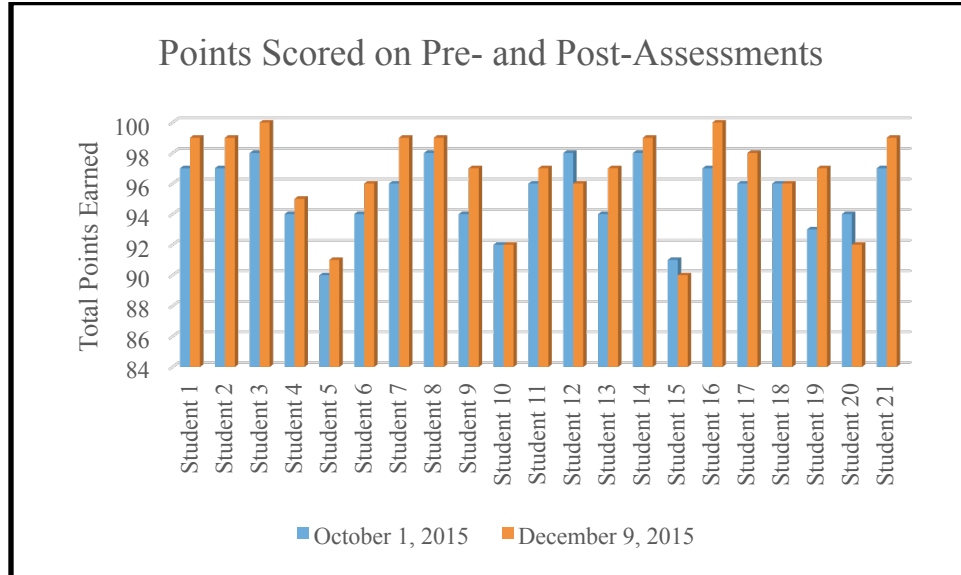


Figure 5 shows that when comparing students' pre-assessment and post-assessment scores, 16 out of 21, or 76%, improved, while 3 out of 21, or 14%, declined, and 2 out of 21, or 9%, stayed the same.

Impact on Student Keyboarding Efficiency

The researcher conducted baseline one-minute timed writing assessments with the students on September 4, 2015 to determine their level of ability. This information was also used to compare their scores prior to the study to their results following the study. Students recorded their best timing consisting of no more than two errors. (See Figure 6).

Figure 6. Baseline One-Minute Timed Writing Scores.

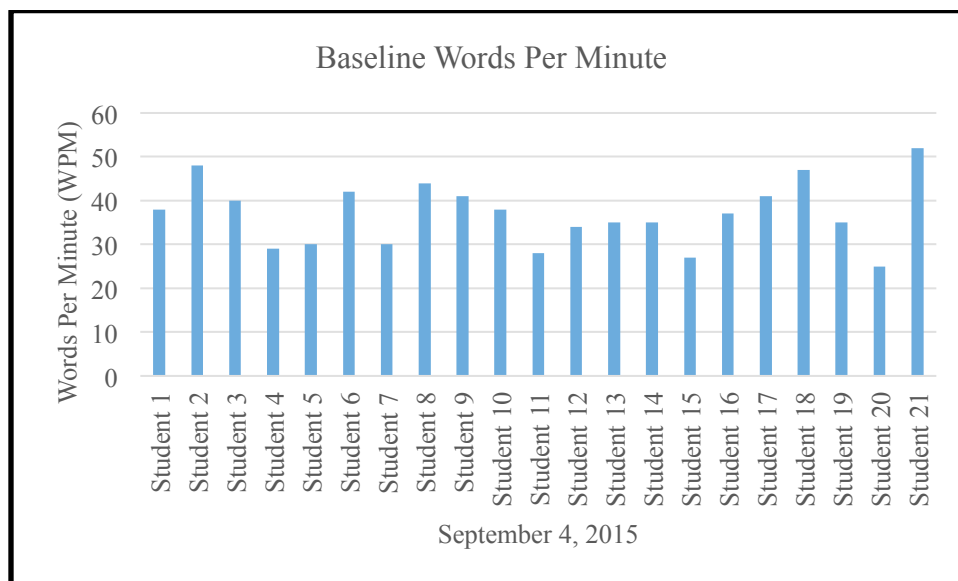


Figure 6 shows the timed writing, words per minute (WPM) with two or less errors, results of the 21 students involved in the study. These were the scores used to compare pre- and post-study words-per-minute outcomes.

The researcher conducted three separate timed writing assessments with the students. Each assessment consisted of three, one-minute timed writings using the Keyboarding Online timed-writing program. Students recorded their best pre-Bal-A-Vis-X scores consisting of no more than two errors. Following this, the students were involved in approximately ten to twelve minutes of Bal-A-Vis-X routines. These routines were conducted twice in the gymnasium, and once in a large commons area. After the completion of the routines, students returned to the computer lab to complete another set of three, one-minute timed writings. Students recorded their best post-Bal-A-Vis-X scores consisting of no more than two errors. (See Figures 7-9).

Figure 7. Pre- and Post-Bal-A-Vis-X Scores, November 9, 2015.

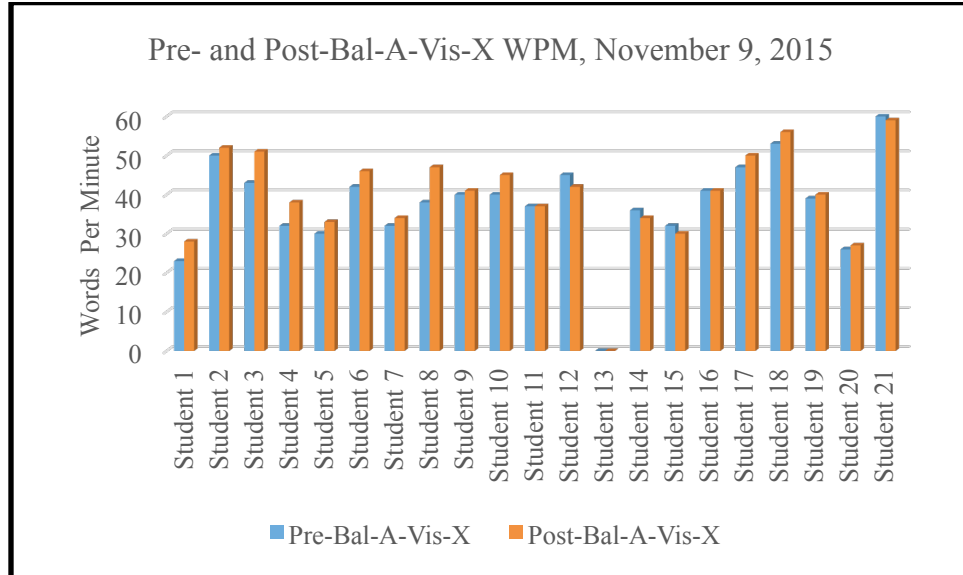


Figure 7 shows that 14 out of 20, or 70%, of the students improved when comparing their pre- and post-Bal-A-Vis-X timed writing scores. Two out of 20, or 10 %, of the students' pre- and post-Bal-A-Vis-X timed writing scores stayed the same, while four out of 20, or 20%, of the students' pre- and post-Bal-A-Vis-X timed writing scores declined. One student was absent.

Figure 8. Pre- and Post-Bal-A-Vis-X Scores, November 25, 2015.

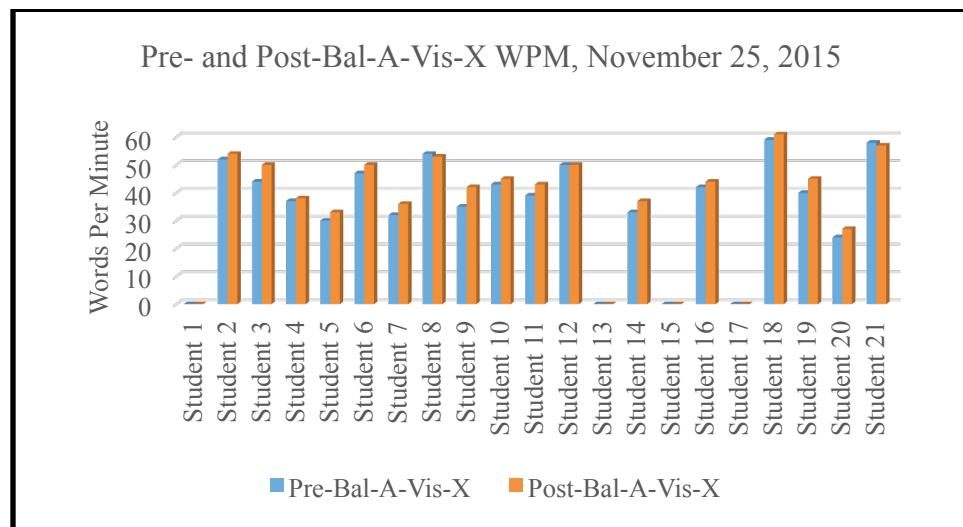


Figure 8 shows that 14 out of 17, or 82%, of the students improved when comparing their pre- and post-Bal-A-Vis-X timed writing scores. One out of 17, or 6%, of the students' pre- and

post-Bal-A-Vis-X timed writing scores stayed the same, while 2 out of 17, or 12%, of the students' pre- and post-Bal-A-Vis X scores declined. Four students were absent.

Figure 9. Pre- and Post-Bal-A-Vis-X Scores, December 7, 2015.

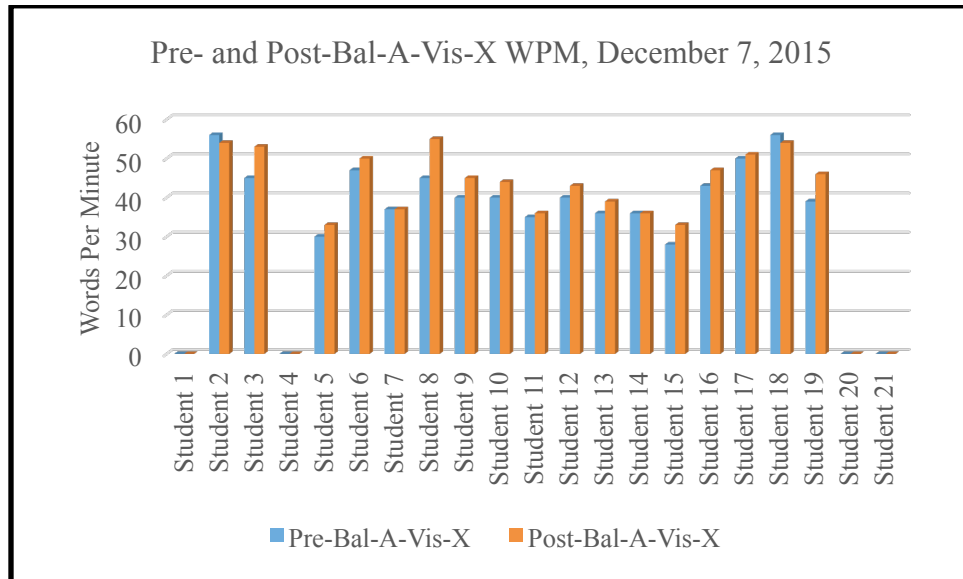


Figure 9 shows that 13 out of 17, or 76%, of the students improved when comparing their pre-and post-Bal-A-Vis-X timed writing scores. Two out of 17, or 12%, of the students pre- and post-Bal-A-Vis-X scores stayed the same, while 2 out of 17, or 12%, of the students' pre- and post-Bal-A-Vis-X scores declined. Four students were absent.

Finally, the researcher compared the baseline timed writing scores taken on September 4, 2015 with the students' best overall timing following the Bal-A-Vis-X routines. (See Figure 10).

Figure 10. Comparison of Baseline Scores, September 4, 2015 and Best Bal-A-Vis-X Scores.

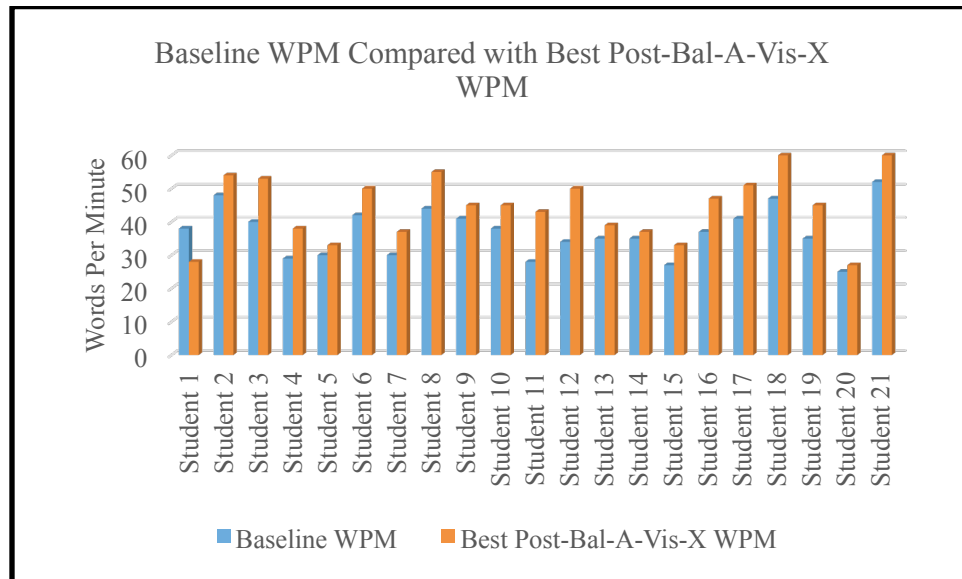


Figure 10 shows that 20 out of 21, or 95%, of the students involved in the study improved their overall words per minute when comparing their initial baseline scores and their best overall post-Bal-A-Vis-X experience. One student out of 21, or 5%, declined in their overall score. The researcher notes that Student 1 was only present for the first round of research, November 9, 2015, and was absent on the subsequent two rounds of research included in the study. The overall average words per minute improvement from September 4 to December 7, was seven words.

Conclusions

The increase in students' positive interest toward becoming a better typist overall could indicate that incorporating movement into a task that could otherwise seem mundane, may be a motivating factor for better performance. Additionally, students' interest in Bal-A-Vis-X, which was a new concept for all subjects involved in the study, could also indicate their willingness to put forth better effort in their performance. Multiple students indicated in their student responses overwhelming enthusiasm toward Bal-A-Vis-X, and how the routines primed them for better

overall performance following the exercises. This could also indicate that they believe if better results continue following the Bal-A-Vis-X exercises, these routines will continue to be integrated into the class.

The increase in student focus measured through the assessment of the ten primary keyboarding skills, could indicate that implementing the Bal-A-Vis-X routines does cause focus to improve. Because the Bal-A-Vis-X exercises require focused attention and full-body coordination on the part of the student, this engagement carried over into the activities which immediately followed. The study results demonstrate that for the majority of the students involved, improvement in focus was quite evident. Again, student interest in this novel program could also indicate their willingness to push themselves to focus more intently for longer periods of time, which in turn produced better performance.

Student keyboarding efficiency improved consistently each time the Bal-A-Vis-X exercises were implemented. This could indicate that because the exercises engage both sides of the brain, the hand-eye coordination improved significantly following the exercises, leading to the improvement in performance. It could also indicate that as student keyboarding efficiency improved, their self-confidence also improved, which in turn led to a positive attitude toward keyboarding and their ability to continue to improve.

Finally, overall student keyboarding efficiency improved exponentially from the beginning of the study to the final day of data collection. With an average improvement of seven words per minute per student, these results could show that students' interest, attitude, intrigue, and enthusiasm for Bal-A-Vis-X consistently motivated them to focus more intently which ultimately improved their performance.

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Appendix A

BAYX's Vision Tracking Scale

1. **ocular lock:** eyes don't move or connect with swinging ball / in **partial lock**, eyes do move, following ball, but then suddenly revert to lock and remain stationary as ball continues its flight, then may follow ball again
2. **random movement:** eyes move erratically, never connecting with swinging ball, essentially out of control
3. eyes **momentarily catch sight** of (connect with) swinging ball, then revert to random movement
4. eyes follow swinging ball briefly, then appear to re-set and start all over to look for ball
5. eyes follow swinging ball, then **slip or dart ahead** of ball (in circular pattern eyes will cut corners at outer edges of circle); this person will likely skip words when reading
6. eyes follow swinging ball, then **slip or dart backwards**, losing contact with ball; it looks like a double-hitch or stutter movement; this person will likely repeat words while reading
7. eye movements include many, if not all, of previous patterns; this is our all-purpose **Big Time Mess** category
8. eye movement **glitches** exist (and will be troublesome for student) but, overall, are **less than severe**
9. eye movements **glitches** are relatively minor
10. eyes follow swinging ball without lock or skip or dart or re-set or stutter or hesitation; eye movement is a **flawless flow**

Note: If you understand 1-through-7 and 10, you'll be able to estimate 8 and 9.

Note: This is our tracking scale. Feel free to amend it or develop your own.

Appendix B

Dear Mr. Borer

As you are aware, I am currently a graduate student at Wayne State College. The culminating product of the Master's in Curriculum and Instruction is an action research paper. In order to complete this paper, I will be implementing an action research project in my room. Below is a copy of the consent form I will be sending to the parents of the students in my classroom.

You are invited to participate in a study of how participating in Bal-A-Vis-X prior to taking timed writings impacts overall speed and accuracy when entering data. We hope to learn if Bal-A-Vis-X routines completed prior to taking timed writings will have an impact. You were selected as a possible participant in this study because you are a student in Mrs. Went's classroom.

If you decide to participate, the researcher will have you take baseline timed writings prior to the Bal-A-Vis-X routines. You will record your results. This will happen on four occasions. Following the baseline timings, you will participate in Bal-A-Vis-X routines. This will also happen on four occasions. Following the Bal-A-Vis-X activities, you again take timed writings. This will happen on four occasions. You will record your results. You will then complete a short questionnaire where you will state and compare your scores from before and after the routines were performed. You will also state how you felt about the process and whether or not your focus improved.

Any information that is obtained in connection with this study and that can be identified with you will remain confidential and will be disclosed only with your permission.

Your decision whether or not to participate will not prejudice your future relations with Wayne State College, Be Rudloff, Adviser, Jerad Wulf, Adviser, or Mrs. Went, Principal Investigator. If you decide to participate, you are free to discontinue participation at any time without prejudice.

If you have any questions, please ask us. If questions arise later, you can call Mrs. Went at 402-920-1073 or Be Rudloff at 402-360-0365, and they will be answered.

Your signature indicates that you have read and understand the information provided above and have decided to participate. You may withdraw at any time without prejudice after signing this form should you choose to discontinue participation in this study.

Signature of Student

Date

Signature of Parent or Legal Guardian

Date

In order to receive approval from the Institutional Review Board at Wayne State College, I need your signature indicating your knowledge and approval of this project. Thank you for allowing me to continue to improve my teaching methods and improve student success in our school.

Sincerely

Jan Went

Principal Signature

Date

Appendix C

Hello,

As you may know, I am completing my Masters of Education in Curriculum and Instruction from Wayne State College. I have chosen to complete my research on the effects Bal-A-Vis-X has on student focus and overall efficiency when entering data. Bal-A-Vis-X is an activity involving racquetballs and routines requiring focus on balance, audio and vision. I would like for your child to be a part of my study. I believe this is an opportunity for me to improve and expand my teaching effectiveness and give opportunities for your child to gain focus and increased data entry efficiency.

The strategies I have chosen to implement will be performed by me and I reassure you that I will keep the best interest of your child in mind at all times. My research study will begin in October of 2015 and should conclude by December of 2015. If at any time you have concerns about my study, please visit with me. You may withdraw your child from the study at any time if you deem it necessary.

As I begin the written portion of my research study, I will not refer to your child by name. The identity of my participants will not be disclosed.

If you have any further questions, you may contact the principal investigator, which is myself, or either one of my advisors through Wayne State College. I have listed our contact information below. I also have listed the statements of consent needed in order for me to begin my research study.

I give consent for my child to be an active participant in Jan Went's research study. The study is a requirement through Wayne State College as Mrs. Went is continuing her education. I have read the above information and agree that my child may be included as part of the study.

Name

Date

I give consent for my child to be videotaped, recorded, or photographed as part of the research study.

Name

Date

Thank you for taking the time to consider this opportunity for your child and myself. I look forward to how my findings may impact the education for your child!

Jan Went- Principal Investigator
(402) 920-1073

Be Rudloff (WSC Advisor)
(402) 360-0365

Jerad Wulf (WSC Advisor)
(712) 898-4031

Appendix D

STUDENT SURVEY

Introduction to Business Communication

Name _____

- | | | | |
|--|-----|-------|----|
| 1. Do you have a computer at home? | Yes | Maybe | No |
| 2. Are you allowed to use the computer? | Yes | Maybe | No |
| 3. Would you be able to type letters, reports, etc. for your parents? | Yes | Maybe | No |
| Do you believe you are: | | | |
| 4. a self motivator? | Yes | Maybe | No |
| 5. conscientious about your work? | Yes | Maybe | No |
| 6. willing to re-type your work in order to get a better grade? | Yes | Maybe | No |
| 7. able to work independently? | Yes | Maybe | No |
| 8. able to work well with a group? | Yes | Maybe | No |
| 9. willing to work above and beyond what is expected? | Yes | Maybe | No |
| 10. Are you interested in improving your keyboarding speed? | Yes | Maybe | No |
| 11. Are you interested in improving your keyboarding accuracy? | Yes | Maybe | No |
| 12. Are you interested in becoming a better typist overall? | Yes | Maybe | No |
| 13. Do you believe you will be using your keyboarding skills to type projects for other classes? | Yes | Maybe | No |
| 14. Do you believe you will be using your Keyboarding skill in your future career? | Yes | Maybe | No |

Comments:

Appendix E

[illegible]

Timing Chart

Appendix F

Assessment of Keyboarding Skills

Name _____

Keyboarding Skills			
• • Correct posture. (Back is straight, sits centered in front of the keyboard, body directly in front of the "J" key)?			
• • Eyes on copy?			
• • Feet are flat on the floor?			
• • Arms are relaxed with elbows close to their sides?			
• • Keeps fingers curved, tips of fingers resting lightly on HOME ROW?			
• • Keeps wrists low, but palms of hands not resting on the keyboard or desk?			
• • Begins and ends all keystrokes at HOME ROW position?			
• • Keys each key with the correct finger?			
• • Uses quick, snappy strokes, smooth rhythm?			
• • Stays on task, follows directions, uses time wisely. Good attitude.			

Comments: _____

Appendix G

Bal-A-Vis-X Post Survey #1

Name _____

Date _____

Pre Bal-A-Vis-X speed _____

Post Bal-A-Vis-X speed _____

Pre Bal-A-Vis-X errors _____

Post Bal-A-Vis-X errors _____

How did you feel about your results today?

What factors from today's experience caused you to feel this way?

How do you believe today's experience could have been improved?

Comments:
