

Achieving Speed and Accuracy with Speech Recognition Software

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development

End user productivity is one of the primary concerns of business people everywhere. Developments in information systems have assisted workers to become increasingly productive. Training end users to become productive is an issue that needs to be continually addressed. Some of the questions which must be addressed include how much and what types of training must be completed for end users to develop skill.

Why Teach Speech Recognition?

Much of the literature written about speech recognition around 2000 indicated during the first decade of the Twenty-first Century, speech recognition was predicted to overtake the computer keyboard as the most popular computer input method (Maxam, 2002) (Kurzwell, 2001). Speech recognition was also noted to provide options for employers to comply with the Americans With Disabilities Act (Bland, 2000

Purpose of the Study

The purpose of this study was to determine levels of speed and accuracy achievement resulting from the participation in introductory sessions using speech recognition software.

Procedures

Seventy-nine university students who were enrolled in an advanced computer applications class participated in the study. The study continued each semester from Fall, 2003, through Fall, 2005, with 10—20 students participating each semester. Dragon Naturally Speaking, Version 7, was used by each student. Students were provided with instructions for starting the program and completing the volume and audio check procedures. Students read one training passage which accompanied the software. A different training passage was read during each of three class sessions. Students then completed three, three-minute timed writings. The three timed writings were completed by repeating the same timed writing material three times. The same procedure was followed during each of three separate training sessions with students completing one new training passage followed by three, three-minute timed writings during each session. The three sessions were spaced one week apart. No other speech recognition training was included within the project to ensure the rates of dictation speed and accuracy would not be affected by incidental learning involved with other training activities involving speech recognition software.

Findings

The findings of the study indicate that students with little or no formal instruction were able to achieve relatively high levels of speed and accuracy with speech recognition software during the three sessions in which they were involved with the project.

Average speeds were computed to determine levels of speed achieved by participants during the three, one-hour sessions. The initial speed achieved during each session, the average speed achieved during each session, and the highest speed achieved during each session were computed.

The initial speeds achieved by students during each of the three sessions appear in Table 1.

Table 1

	Session 1	Session 2	Session 3
Ave	99	131	140
SD	45	34	30

The average speeds achieved by students during each of the three sessions appear in Table 2.

Table 2

Average Speeds for All Students
Average of three TW Each Session
(traditional five-stroke count)

	Session 1	Session 2	Session 3
Ave	120	143.3	150.3
SD	37.5	31.0	29.5

The highest speeds achieved by students during each of the three sessions appear in Table 3.

Table 3

Average Speeds for All Students
Highest of three TW Each Session
(traditional five-stroke count)

	Session 1	Session 2	Session 3
Ave	144	158	162
SD	33	28	28

Accuracy rates were computed to determine levels of accuracy achieved by participants during the three sessions. The initial accuracy rate achieved during each session, the average accuracy rate achieved during each session, and the highest accuracy rate achieved during each session were computed.

The initial accuracy rates achieved by students during each of the three sessions appear in Table 4.

Table 4

Accuracy Rates for All Students
First TW Each Session

	Session 1	Session 2	Session 3
Ave	90.8%	88.3%	90.5%
SD	5.7	11.4	5.6

The average accuracy rates achieved by students during each of the three sessions appear in Table 5.

Table 5

Accuracy Rates for All Students
Average of Three Timed Writings Per Session

	Session 1	Session 2	Session 3
Ave	91.0%	89.9%	90.6%
SD	4.7%	6.7%	5.1%

The highest accuracy rates achieved by students during each of the three sessions appear in Table 6.

Table 6

Accuracy Rates for All Students
Best of Three Timed Writings

	Session 1	Session 2	Session 3
Ave	92.6%	91.8%	92.3%
SD	4.1%	5.4%	4.1%

Conclusions

The following conclusions were drawn from the findings presented above.

1. Rapid dictation speed (150 WAM) can be developed rather quickly and easily.
2. Speed increases with repeating timed writings.
3. Reasonable accuracy (90%) can be developed rather quickly and easily.
4. Increasing accuracy appears to require more additional training than for increasing speed.
5. Increased accuracy requires reading additional passages and/or training on difficult words.
6. Developing success with commands and corrections require additional work.

REFERENCES

- Barksdale, Karl. (2002) Speech Recognition: How Do We Teach It? *Business Education Forum*, 56(3), 52—56.
- Bland, Zinna L. (2000) Teaching Voice Recognition Systems: Strategies for Success, *The Delta Pi Epsilon Journal*, XXXII(4), 212—222.
- Maxam, Susan. (2002). Keyboarding, Word Processing, and Other Input Skills, *Technology, Methodology, and Business Education, 2002 Yearbook, National Business Education Association*, 40, 245-262.
- West, Leonard J. (1983). *Acquisition of typewriting Skills, Second Edition*. Indianapolis, Indiana: Bobbs-Merrill Educational Publishing.

INTERNET REFERENCES

- Office XP Speaks Out: Voice Recognition Assists Users*. (2001). Retrieved August 1, 2005, from <http://www.microsoft.com/presspass/features/2001/apr01/04-18xpspeech.asp>
- Welcome to Voice Recognition Systems*. (2003). Retrieved on August 1, 2005, from <http://www.iglou.com/vrsky/>