



IPRO 353: THE YUVEE™ PERSONAL ELECTRONIC DEVICE

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OVERVIEW

GOAL

The Primary Goal for IPRO-353 is to provide hard data on the ease of use claims for the Yuvee Keypad to aid in turning the Keypad into a product on the market. The product could be manufactured as a

- stand-alone plug-in version to connect to a PC
- built-in version: licensed keypad embedded in a hand held device such as a cell phone or a PDA.

THE NEED FOR A NEW INPUT DEVICE

According to Tim Higginson, the inventor of the Yuvee Keypad, “*consumers of electronic devices are forced to use painfully bad input systems*”. The input devices for data entry have not evolved as rapidly as the technology itself. Thus, the Yuvee Keypad is a step in the direction of improving (or replacing) such input systems.

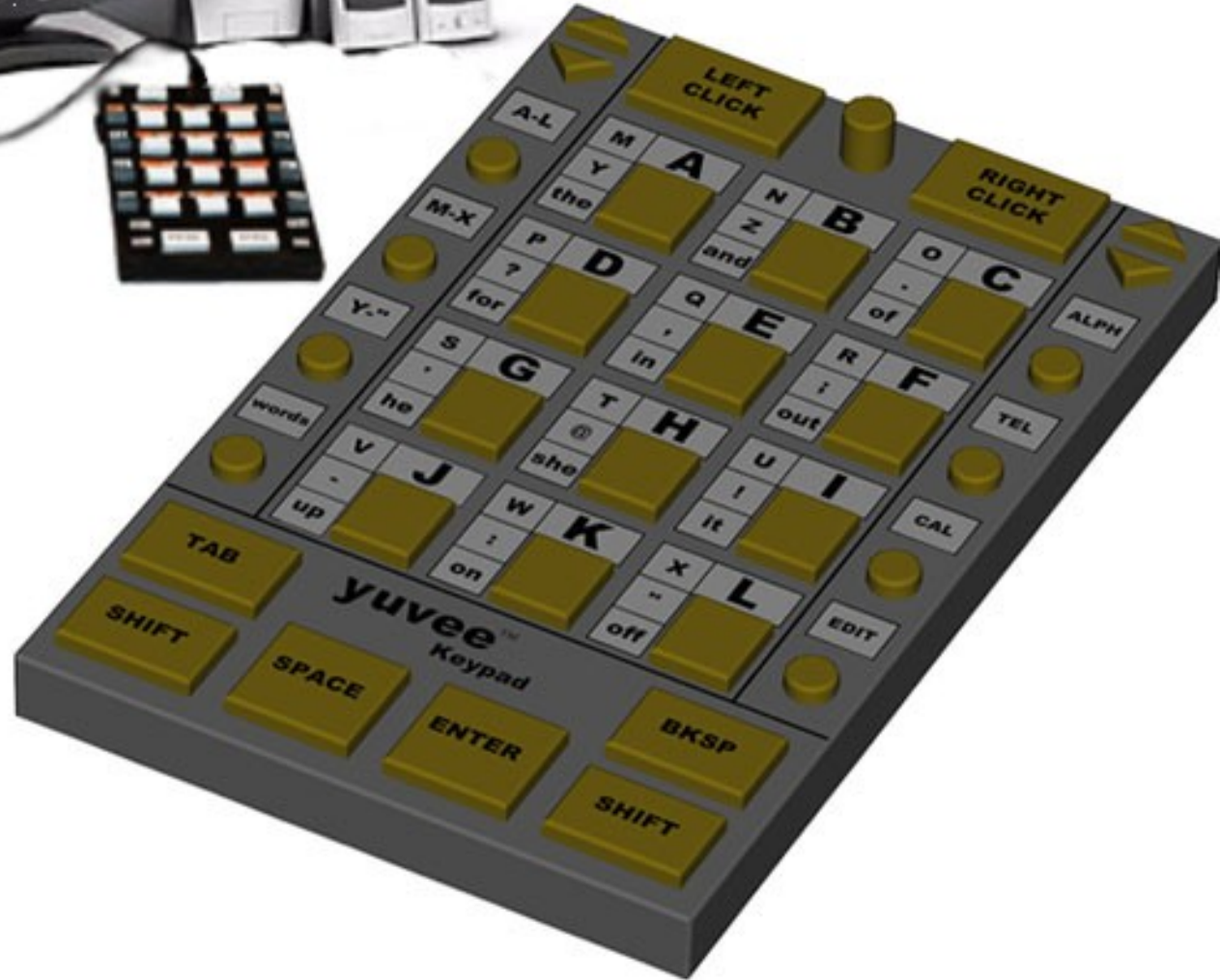
WHAT IS THE YUVEE™ KEYPAD ?

The Yuvee Personal Electronic Device is a universal keypad, which (with certain modifications) can perform the tasks of

- A personal computer “QWERTY” keyboard
- A cell phone keypad
- Keypad of a hand-held electronic device such as a Palm Pilot.

THE YUVEE KEYPAD

Stand Alone Version, Connected to a PC



THE YUVEE KEYPAD

Built-in Version: Embedded in a Hand-Held Device as a Licensed Keypad



MODE SWITCHING

TESTING THE YUVEE KEYPAD

It was decided to use usability testing to determine how the Yuvee Keypad would fare against other keypads, such as a cell phone keypad. The data collected and the results obtained from it would help determine whether the Yuvee keypad has a future in the market as a licensed keypad built into hand-held devices.

TEST PLAN

- The potential of the Yuvee as a built-in keypad was explored.
- To make the testing simple and more precise, it was decided that the two keypads (Cell-phone vs. the Yuvee) would only be tested in the capacity of text messaging.

TESTING: PHASE I

OCT 15 – OCT 27, 2003

- Testing apparatus: Palm Pilots containing electronic versions of Nokia cell phone keypad and the Yuvee keypad.
- Location of testing was the IIT campus.
- Target of 70 intercepts
- Actual intercepts: 68
- Test Sentence: “Meet you at the HUB at 8:30”



QUANTITATIVE DATA RECORDED PHASE I & PHASE II

Data Recorded (electronically) for both keypads:

1. Time taken
2. Number of errors
3. Number of Keystrokes
4. The string entered by the user (subject)

QUALITATIVE DATA RECORDED PHASE I & PHASE II

Data Recorded (on paper) :

1. Familiarity with cell phone
2. Familiarity with text-messaging
3. Comfort level of cell phone keypad
4. Comfort level of the Yuvee keypad
5. Rating of mode-switching feature of the Yuvee

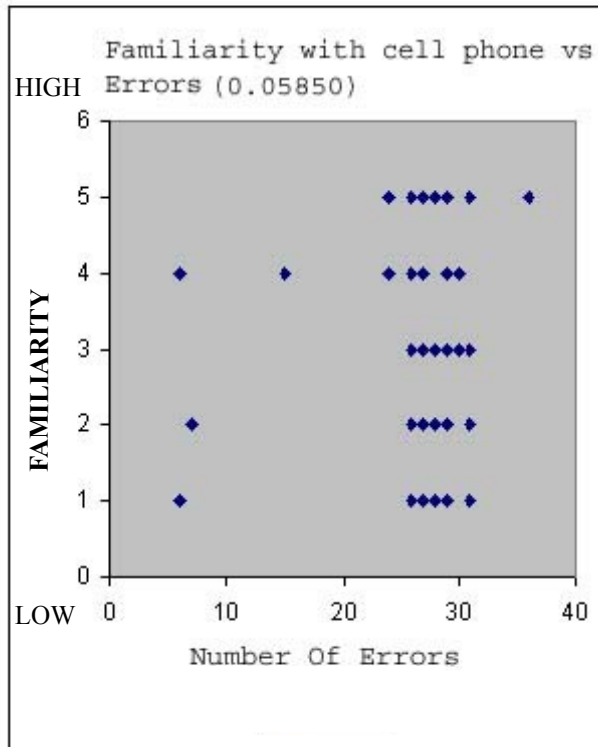
FINDINGS: PHASE I

<i>Median</i>	Cell Phone	Yuvee
# of Keystrokes	87	55
# of Errors	28	4
Time taken (seconds)	178	106

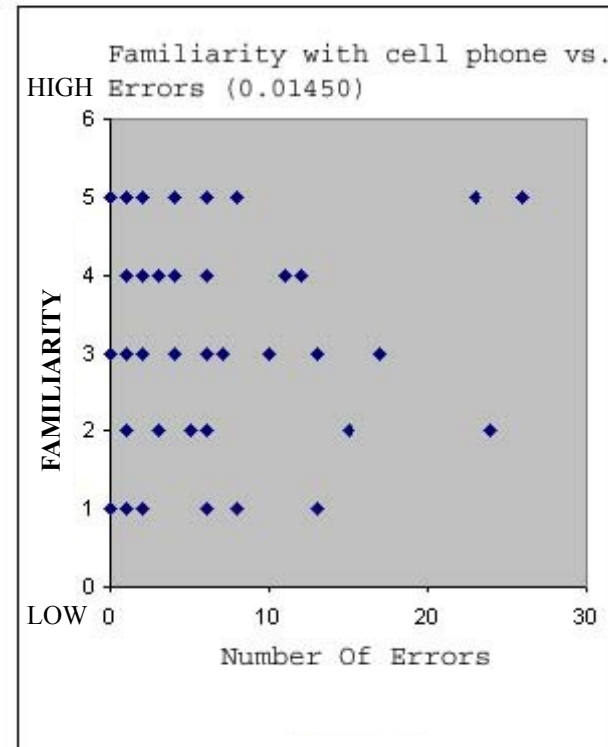
FAMILIARITY WITH A CELL PHONE HAD NO EFFECT ON THE # OF ERRORS

PHASE I

CELL PHONE

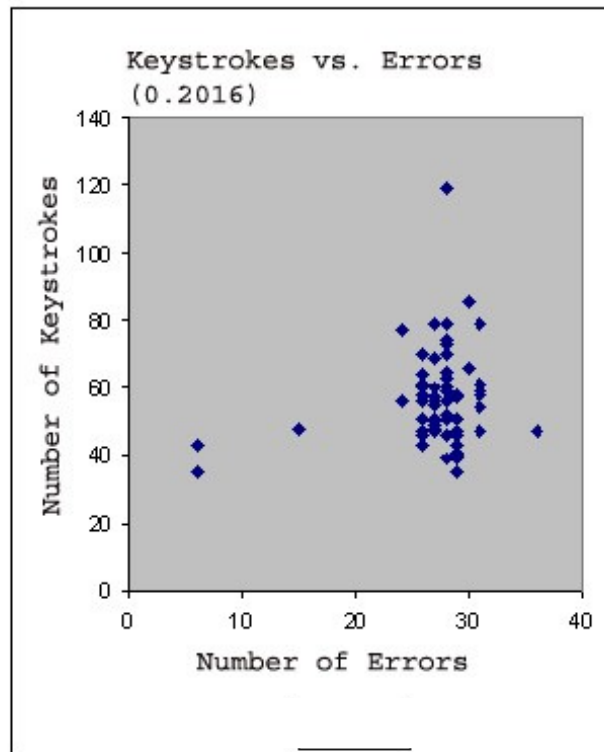


YUVEE

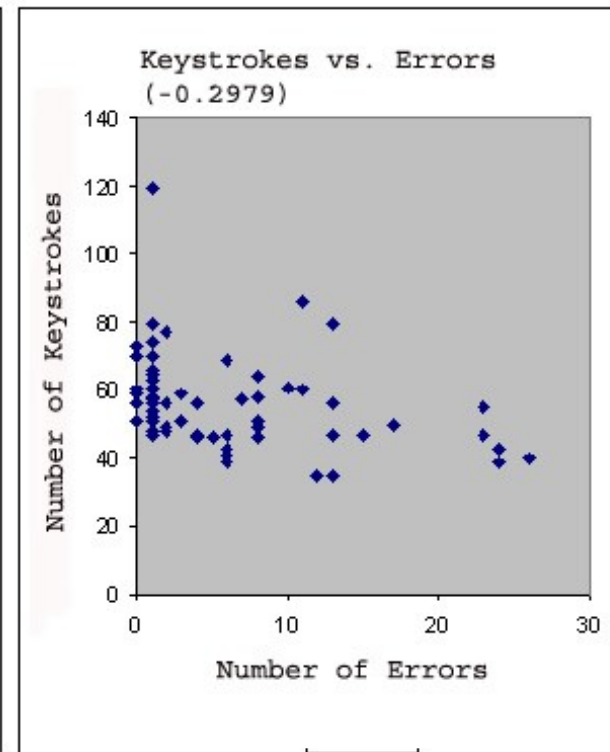


FOR CELL PHONE: MORE KEYSTROKES = MORE ERRORS
FOR YUVEE KEYPAD: ERRORS WERE LOW IRRESPECTIVE OF
THE # OF KEYSTROKES
PHASE I

CELL PHONE

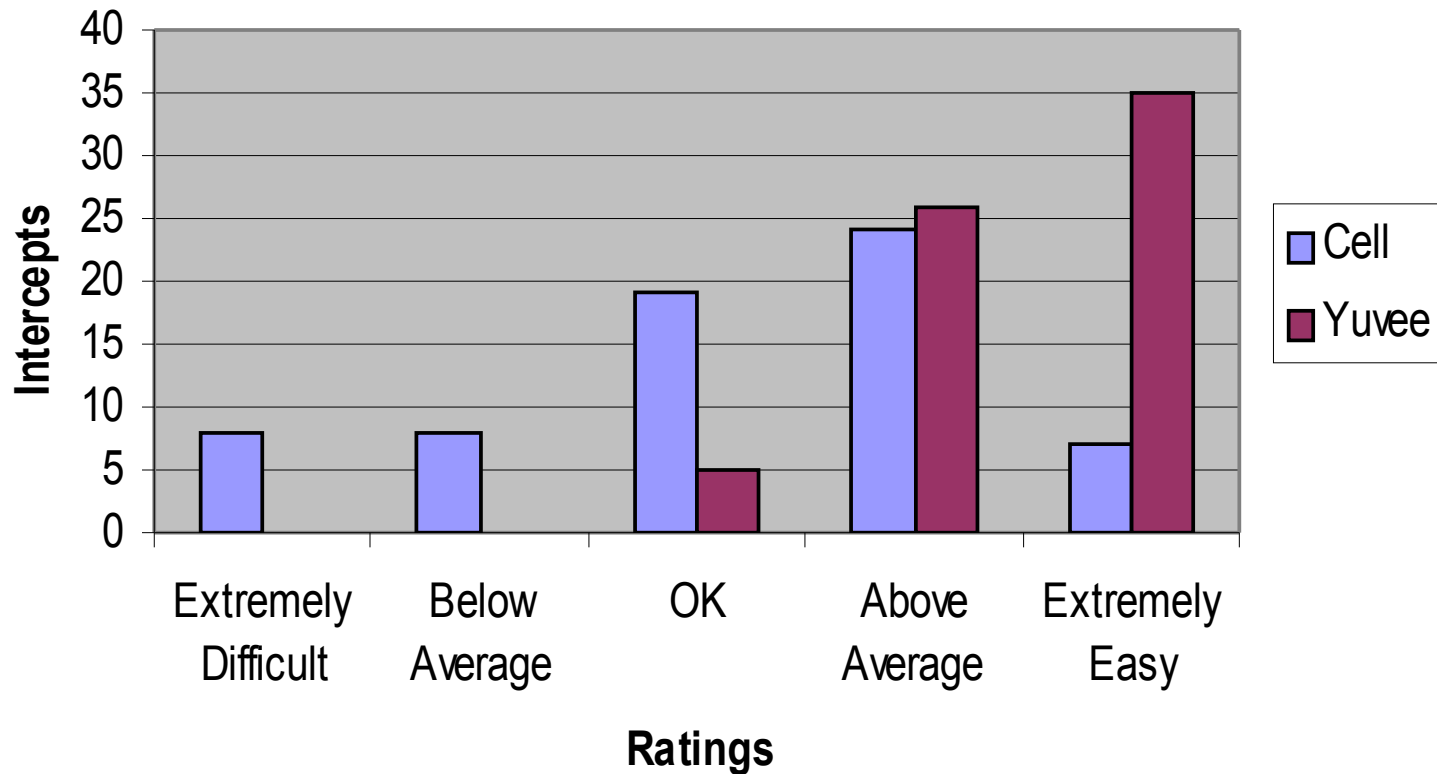


YUVEE



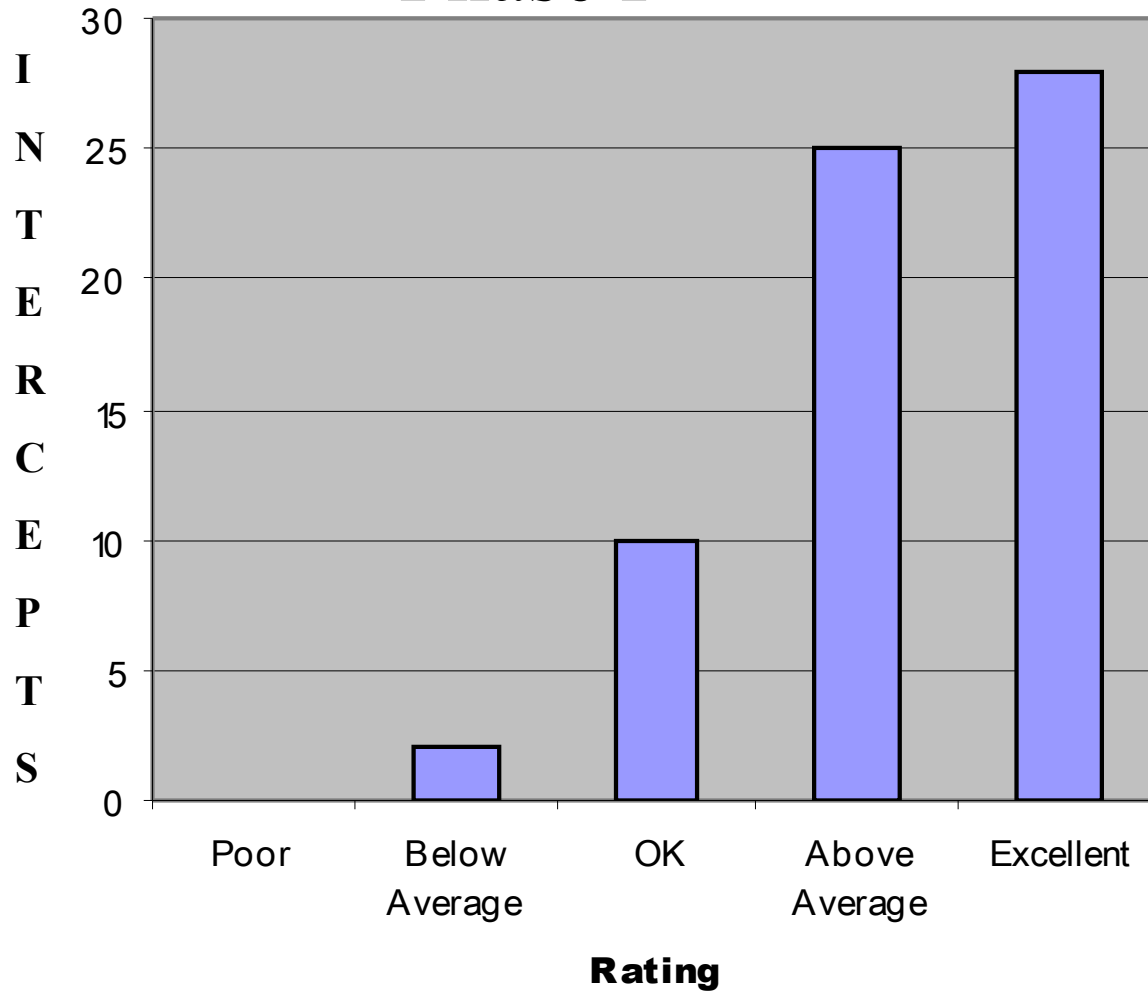
WAS THE YUVEE KEYPAD EASIER TO USE THAN THE CELL PHONE KEYPAD? PHASE I

Rating of Ease of Use



Willingness to Switch to Yuvee Keypad

Phase I



RECOMMENDATIONS FOR PHASE II

- Randomizing the test
- Change of Sentence
- New Sentence: “call Zoey Oslo 5550353”

TESTING: PHASE II

NOV 11 – NOV 19, 2003

- Testing apparatus: Palm Pilots containing electronic versions of Nokia cell phone keypad and the Yuvee keypad.
- Location of testing was the IIT campus.
- Target of 77 intercepts
- Actual intercepts: 68
- Test Sentence: “call Zoey Oslo 5550353”

FINDINGS: PHASE II

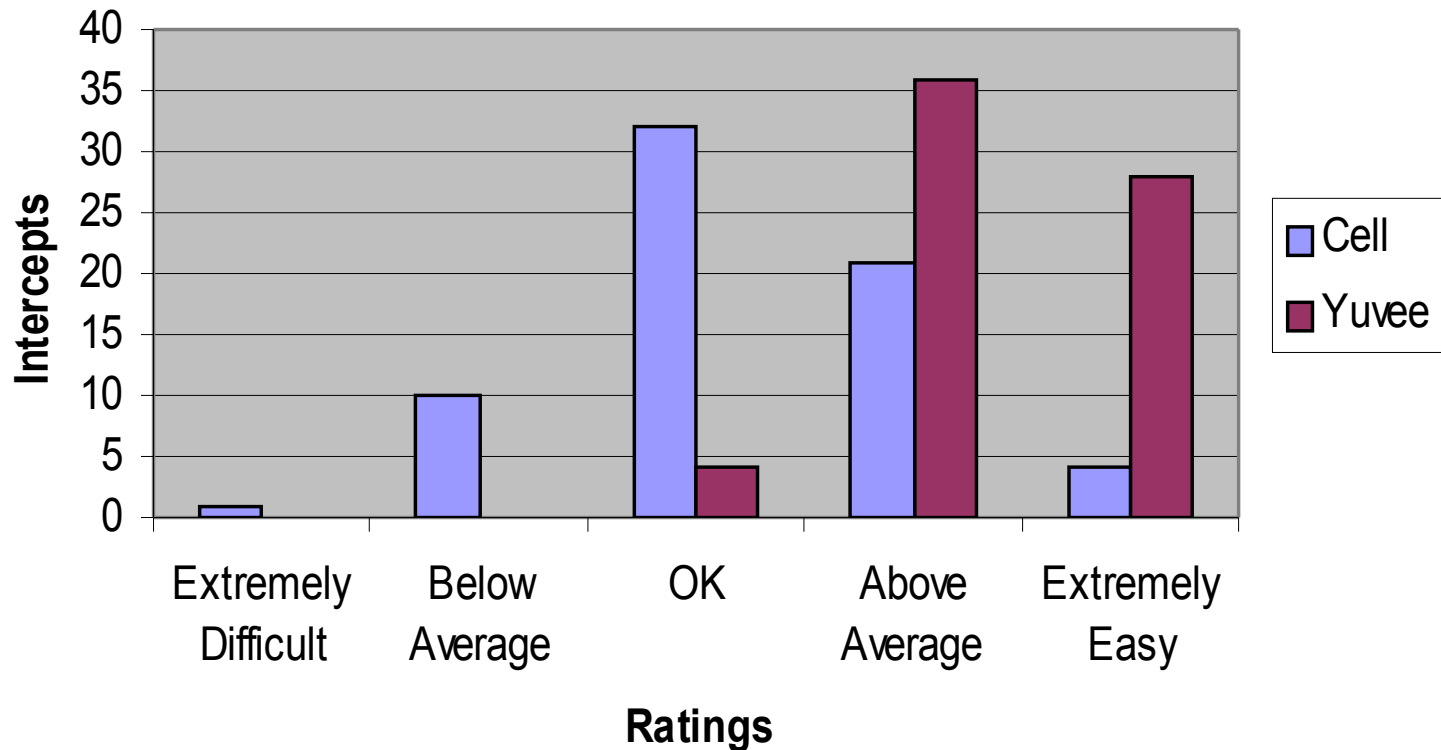
<i>Median</i>	Cell Phone	Yuvee
# of Keystrokes	69	37
# of Errors	21	3
Time taken (seconds)	120	79

FREQUENCY OF USE OF CELL PHONE
VS # OF KEYSTROKES
PHASE II

OF KEYSTROKES VS. # OF ERRORS
PHASE II

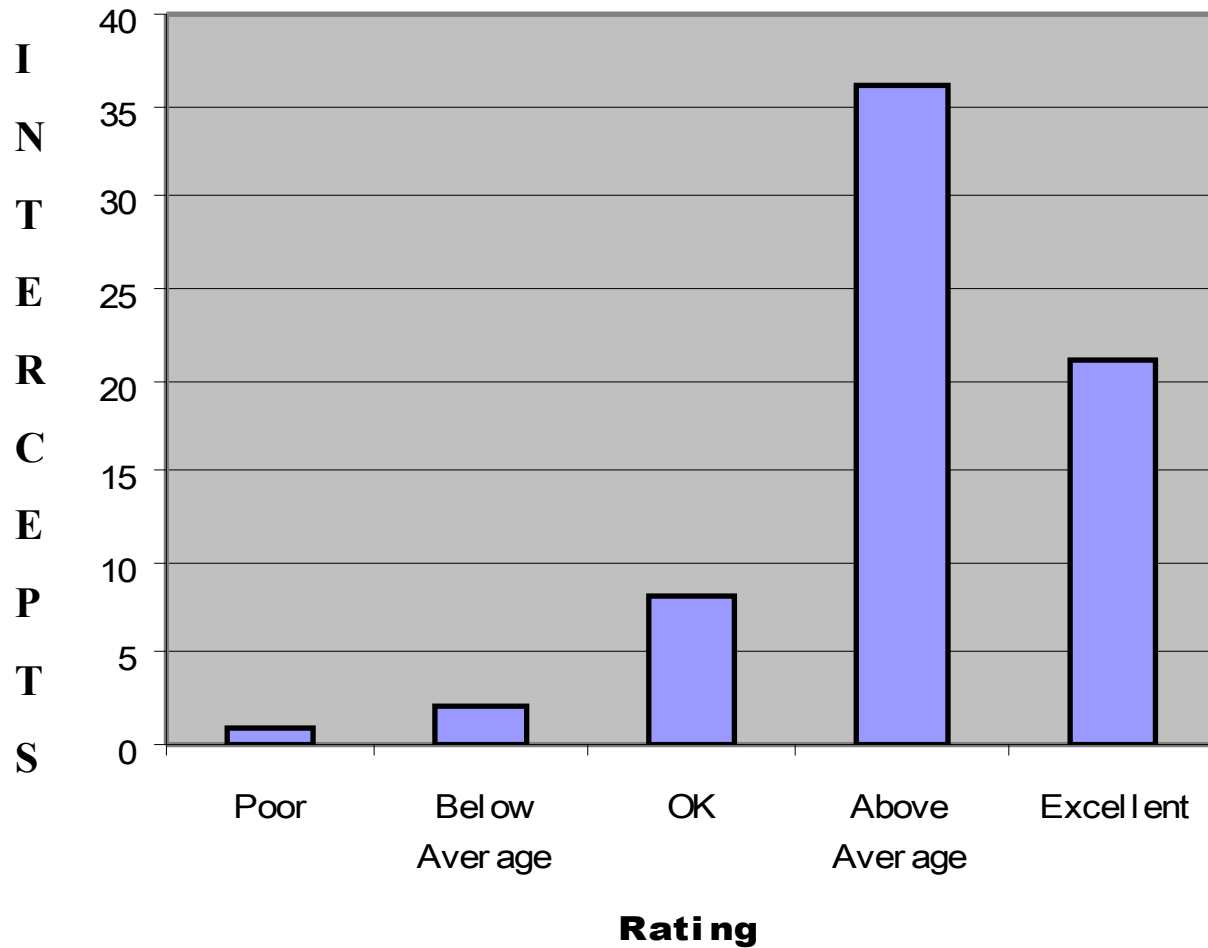
WAS THE YUVEE KEYPAD EASIER TO USE THAN THE CELL PHONE KEYPAD? PHASE II

Rating of Ease of Use



Willingness to Switch to Yuvee Keypad

Phase II



CONCLUSION

Based on the results from testing data (Phase I and II), it is evident that:

- The Yuvee keypad is easier to use than the cell phone keypad in the realm of text messaging.
- Majority of the people who used the Yuvee keypad were willing to swap their cell phone keypad with it.
- There is a market for the Yuvee keypad to be used as a licensed keypad in a cell phone.

UNRESOLVED ISSUES and RECOMMENDATIONS

- It is yet to be seen how the Yuvee keypad would look like in a cell phone and how will it effect it's usability.
- Would people want a keypad which is easier to use in the field of text messaging only? Size is a major tradeoff.
- What potential does the Yuvee keypad have as a stand-alone universal keypad to be connected to a PC terminal? Future IPROs can explore this option.