ICF-CY based surveillance of student functioning in Qatar schools

Annual Meeting, Washington DC
American Public Health Association
6 November, 2007

Rune J. Simeonsson, University of North Carolina at Chapel Hill

Mike Armstrong & Jan Davis, Supreme Education Council, Qatar Schools

Purpose & development of QSIF

□ The Qatar Inventory of School Functioning was developed to survey functional characteristics of student population in four primary pilot schools in Doha, Qatar

□ The QISF consists of 38 items drawn from selected codes from domains of Body Functions and Activities of the WHO International Classification of Functioning, Disability and Health-Version for Children and Youth (ICF-CY)

□ Student profiles reflecting functional limitations could be used to identify students who may have individual needs

Representative ICF-CY codes for items in the QISF

D110	Looking
D115	Listening
D132	Acquiring facts
D134	Acquiring language skills-
D135	Acquiring integrating concepts
D160	Focusing attention
D163	Pretending
D166	Reading
D 170	Writing
D172	Mathematical operations
D175	Problem solving
D210	Coordinating actions
D2250	Responds appropriately-people
D2251	Responds appropriately-demands

Study approach with QSIF

☐ The QISF was was completed on 2032 students (unduplicated count) on direct computer entry by teachers rating student functional characteristics on a 5 point scale (appropriate for age=1) to (pervasive difficulty/problems=5)

☐ Teachers and Individual Needs Coordinators (INC) provided ratings (duplicated count) for 231 and 189 students respectively currently identified as Individual Needs Students
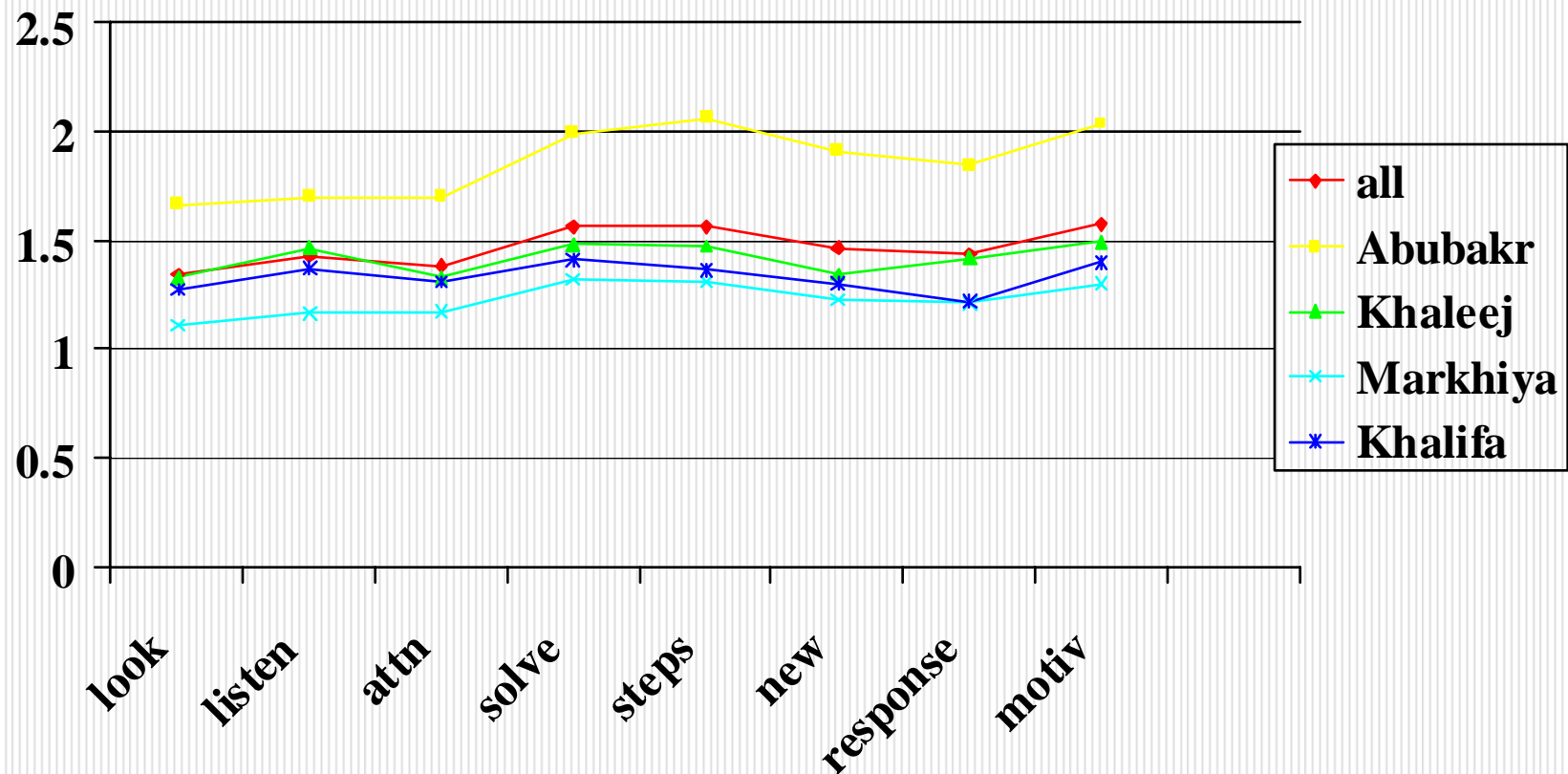
Are there common item sets in the QISF?

Principal components analysis revealed three common item sets accounting for 68% of the variance

☐ Factor I (25 items)- 40.1% of variance

☐ Factor II (9 items)17.2% of variance

☐ Factor III (4 items) 10.5% of variance

Content of common item sets in QISF

- **Factor I**: Schooling functions (Think, Motiv, Recall, Abst, Plan, Semantics, Look, Listen, AcqInfo, AcqLang, 2ndLang, 2Facts, Attn, Ideas, Read, Write, Math, Solve, Steps, New, Response, ExRoutine, Comprehend, Commun, WritComm)

- **Factor II** Behavior/Affect Functions (Impuls,Emotion, Feel, Movts, Interact, Behav, Control, Peers, Authority)

- **Factor III** Adaptive functions (MotCoord,Mobility,SelfCare, Parents)

Functional characteristics of primary students in 4 pilot schools- peformance

# Functional characteristics of primary students in 4 pilot schools- (behavior)
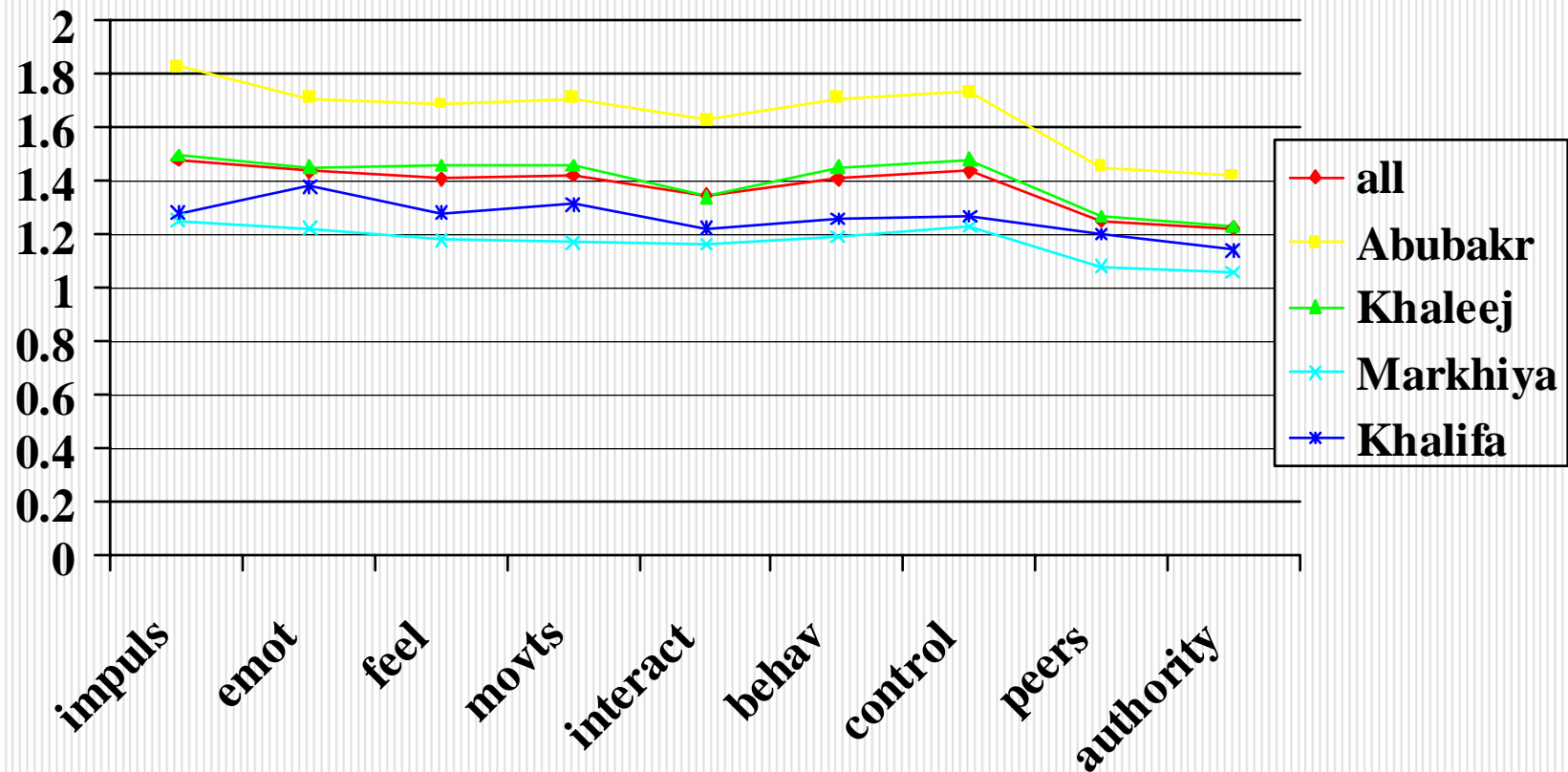
Is the QISF a consistent measure?

- Are teacher ratings of student characteristics consistent within inventory?
- Calculation of alpha coefficient of internal consistency and split-half correlation of 38 items of QISF
- Cronbach's alpha Split-half correlation coefficients (19 items each:
 - Part 1: 0.972
  - Part 2: 0.942

Identification of 5 sub-groups in school population (N=2032)

- ☐ Are there subgroups sharing common item profiles? A five cluster solution yielded distinct item profiles with distribution to subgroups of the total N=2032
- ☐ **Cluster I** (N=182)- Moderate problems
- ☐ **Cluster II** (N=1720)-Normal variation
- ☐ **Cluster III** (N=13)-Extreme problems
- ☐ **Cluster IV** (N=29) Severe problems
- ☐ **Cluster V** (N=71) Mild problems

# QISF profiles of subgroups across 4 schools- Performance items (N=2032)
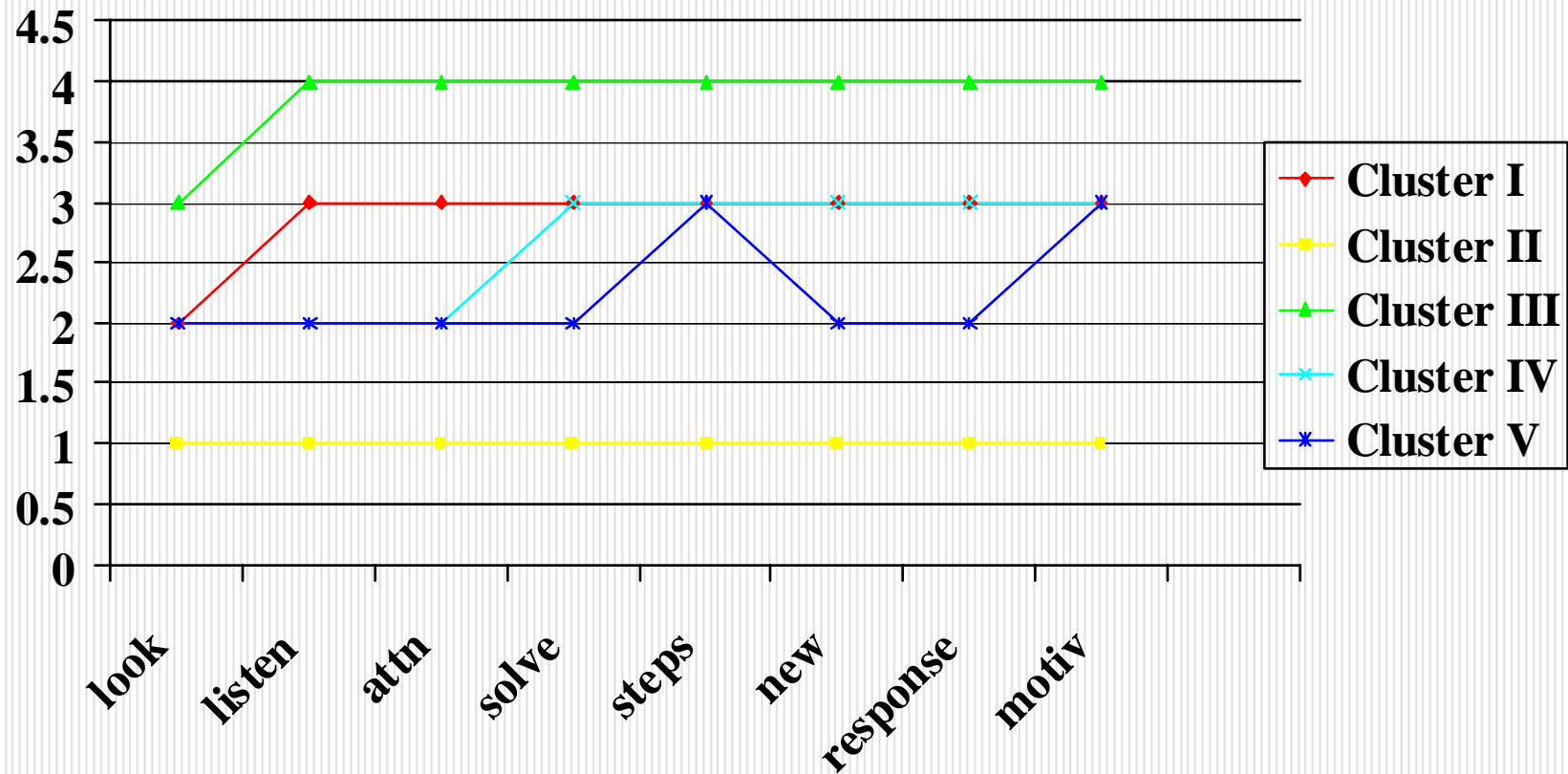
# QISF profiles of subgroups across 4 schools- Behavior items (N=2032)
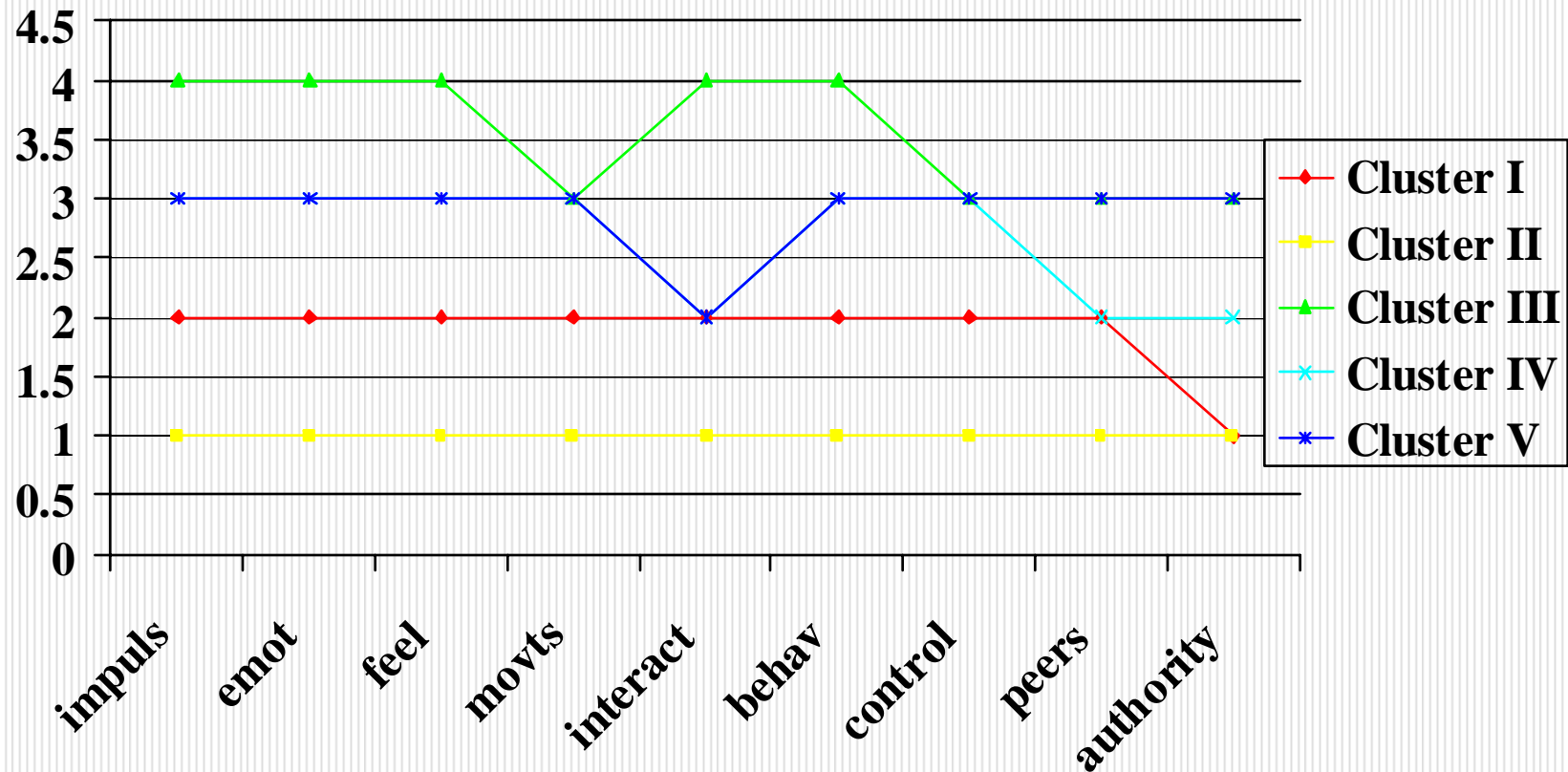
What are the characteristics of 231 students currently identified as individual needs students?

- ☐ Presentation of QISF profiles of mean item scores for 231 students
- ☐ QISF profiles for cognitive, academic, performance, behavior and adaptive domains
- ☐ Data presented for all students and for each school (Abubakr, Khaleej, Markhiya and Khalifa)

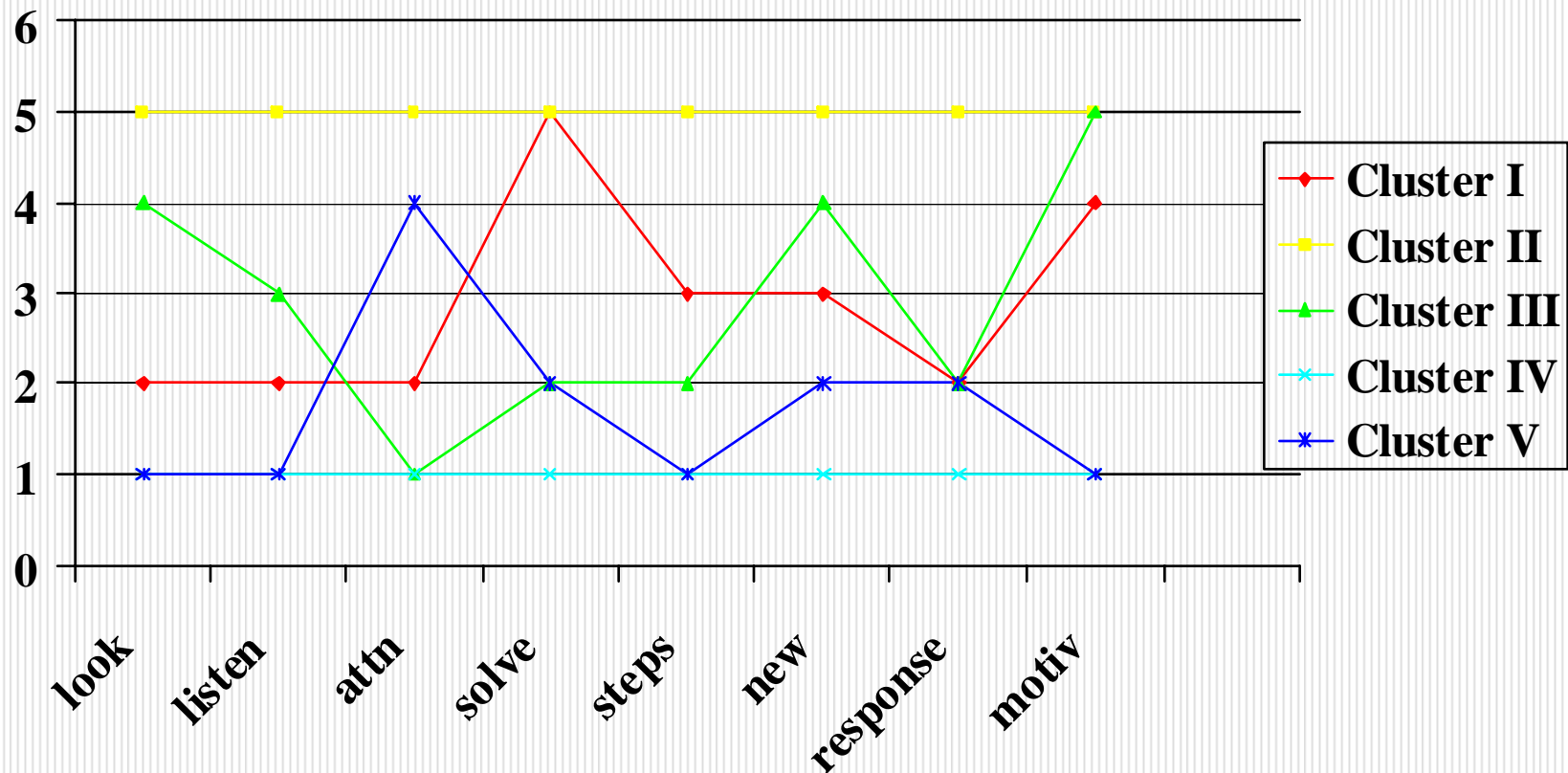# Functional characteristics of INC students in 4 pilot schools-performance (N=231)
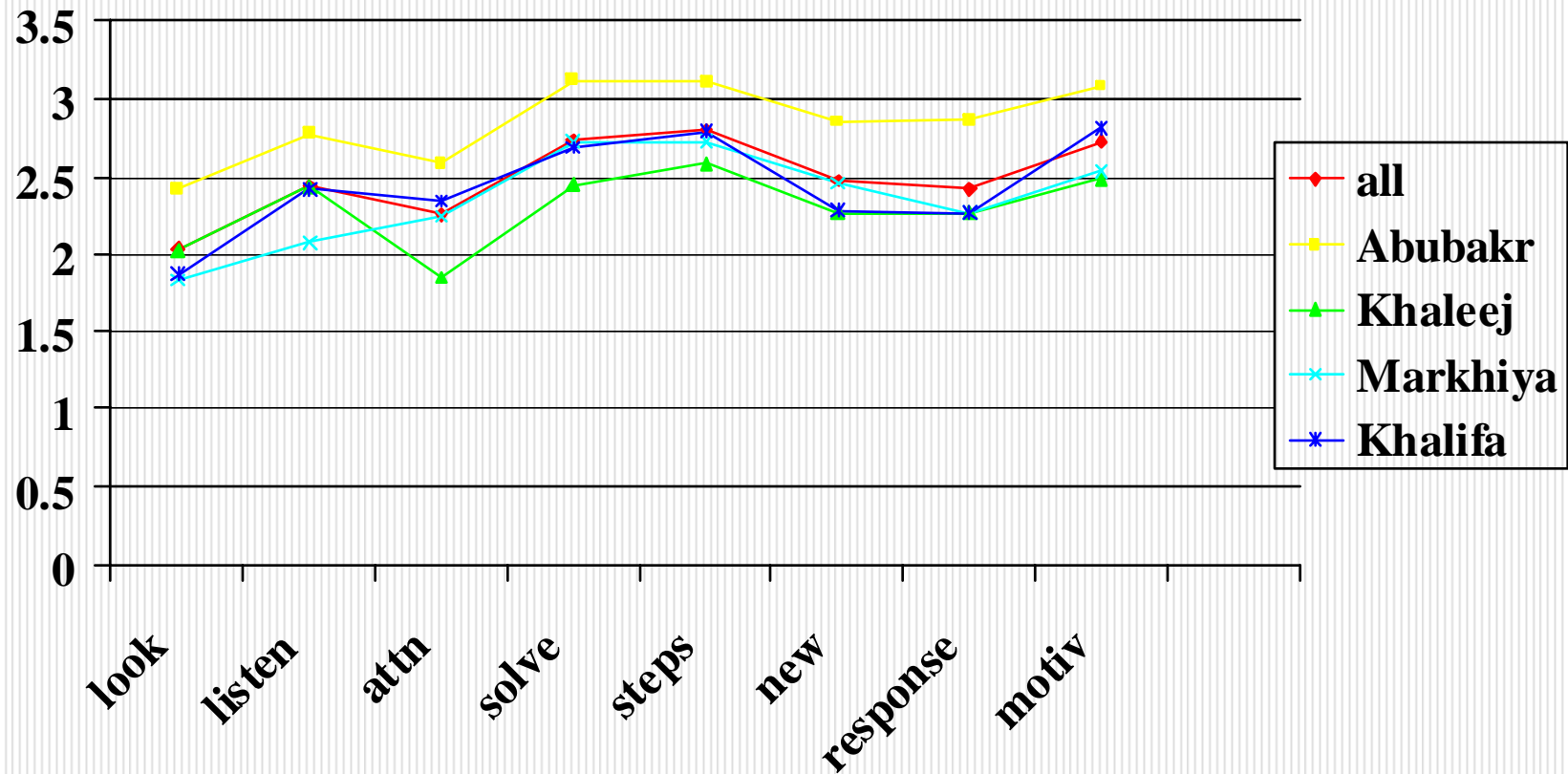
Functional characteristics of INC students in 4 pilot schools-behavior (N=231)
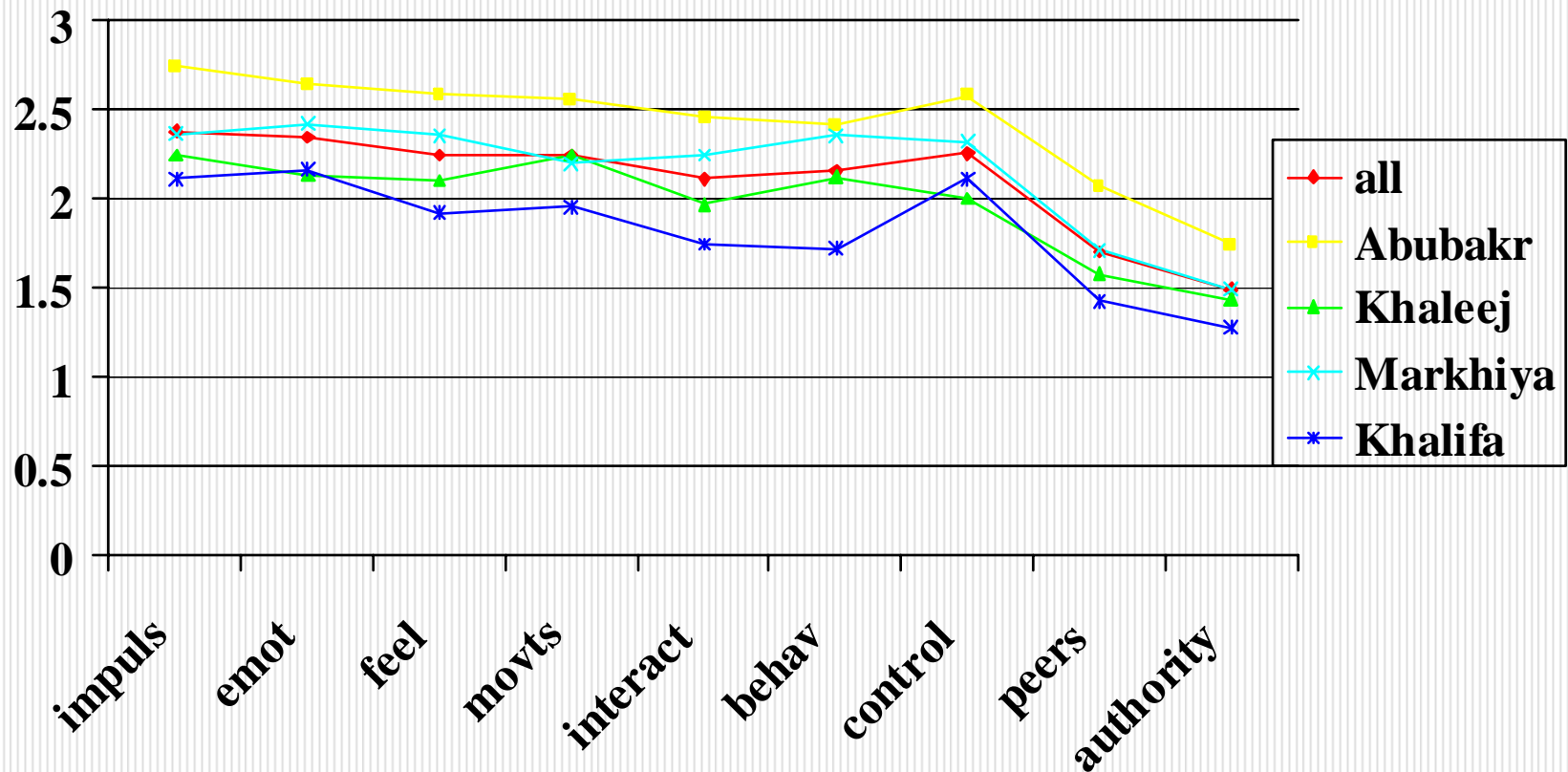
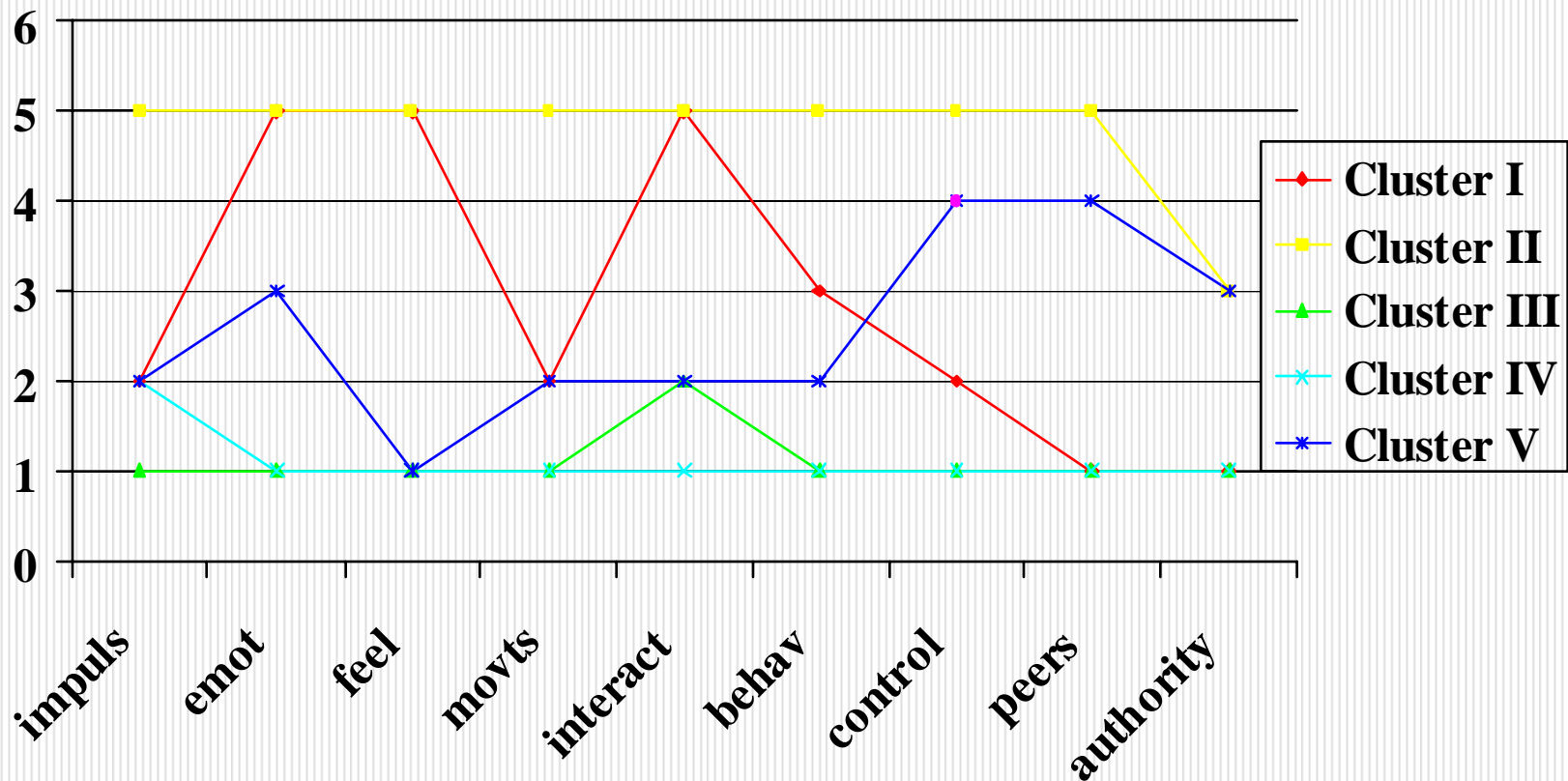# What are the subgroup characteristics of 231 INC students?

- A five cluster solution yielded subgroup profiles with distinct function and severity characteristics for the 231 INC students
- **Cluster I** (N=23)- Severe problems
- **Cluster II** (N=23)-Extreme problems
- **Cluster III** (N=74)-Moderate problems
- **Cluster IV** (N=92) Normal variation
- **Cluster V** (N=16) Mild problems

QISF profile subgroups for IN students- Performance items (N=231)

QISF profile subgroups for IN students -Behavior items (N=231)

Legend:
- Cluster I
- Cluster II
- Cluster III
- Cluster IV
- Cluster V

X-axis categories: impuls, emot, feel, movts, interact, behav, control, peers, authority

Conclusions: student population

- The mean level of functioning of students generally reflects no problem or normal variation (rating of 1.5 or less) for cognitive, academic, performance and behavior domains and even less (1.2) for adaptive skills.

- Variation was found for mean level of functioning by schools, with mean values for students in Abubakr being 0.2 to 0.5 higher than the overall mean as well as the other three schools.

- Five subgroups were identified in the student population, reflecting different levels of functioning from no problems to extreme problems.

Conclusions: student population

- Overall, 85% of the student population was characterized as having no problems of functioning and 3% as having mild problems.

- Of those students rated as having problems, most (9%) were rated as having moderate problems and 1.4% and 0.6% were rated as having severe and extreme problems.

- The distribution of the students with problems (11%), was uneven across schools, with 60% of those with moderate and extreme problems attending the Abubakr school.

Conclusions: students with individual needs

☐ Overall, the mean ratings (2.5-3.0) reflecting moderate levels of problem of functioning across the five domains were 1 to 1.5 scale steps higher than that of the general student population.

☐ In general, mean problem levels were higher for cognitive and academic items than performance or behavior. Minimal problems were noted for adaptive items.

☐ There was overlap of profiles across schools for most domains; the profile for Abubakr was somewhat elevated for performance items compared to the other schools.

Conclusions: students with individual needs

- [ ] Five subgroups were also identified among the 231 students with individual needs, reflecting different levels of functioning
- [ ] In the distribution of levels of functioning, 47% of the students reflected a level of normal variation/mild and another 33% reflected moderate problems.
- [ ] 10% of the student profiles reflected severe and extreme problems, respectively.
- [ ] The distribution of students with severe and extreme profiles was disproportionate across schools; Abubakr and Markhiya schools accounted for 73% of students with severe problems and 69% of students with extreme problems.

Conclusions:

- Documentation of moderate to extreme levels of functional problems in more than 50% of children currently identified with individual needs, provides support for the sensitivity of the QISF to document limitations of child functioning of significance for schooling
- The documentation of student functioning obtained with the QISF in the school population and with students identified with individual needs supports utility of ICF-CY based inventory to survey and screen students for additional educational support.