Nurturing Habits of Mind among prospective teachers: new directions for schools of tomorrow

IACESA International Conference
14-16 February 2013
Cape Town

Prof. Mary Grosser
North-West University, Vaal Triangle Campus
Vanderbijlpark, South Africa
Aim of the presentation

Report on the initial phase (pilot study) of the collective efforts of the staff at the School of Education Sciences (NWU, Vaal Triangle) who are involved in a research project: (2012-2015):

“Improving the Habits of Mind of prospective teachers”
Background
......concerns

Knowledge
- Deep understanding absent
- Cannot think critically or find relationships with other subjects, lack of transfer

Student perceptions
- Learn to pass a test, to graduate
- No mention of personal growth, development or meaning to be derived from content

Lack of persistence & accuracy
- Discouraged - academic challenges
- Poor quality of work
Background

..........concerns

In essence

*Students are not using their minds well*
Background

October 2011 Decision

Becoming a thinking school of teacher education

To improve quality of teacher training
Main aims of becoming a thinking school of teacher education

- Two-folded aim

  Lecturers: enhance own teaching practice

  Students: strategies to improve more thoughtful action

  Students: equip with strategies to enable learners at school to use their minds well
Top priorities for 2012
Theoretical framework

Which strategies could we apply to enable students to use their minds better?

- Art Costa and Bena Kallick (1982)
- James Anderson, 2011
- Cognitive modifiability

Students taking charge of their own growth and development

Enhance the quality of academic performance

More thoughtful actions

Habits of Mind
What are the Habits of Mind?

- Not just behaviours that we pick up and lay down whimsically
- Behaviours that are intellectual in nature: “habits of mind”
- Intellectual behaviours we exhibit **reliably** and **accurately** when confronted with cognitive tasks
- Smoothly triggered without painstaking effort
- Clusters of 16 intellectual behaviours seldom performed in isolation
- Intellectual resources that deliver powerful results of high quality and significance
What are the Habits of Mind?

Habits of Mind

- Not behaviours we pick up and lay down whimsically
- Clusters of 16 intellectual behaviours
- Used when confronted with cognitive tasks
- Triggered without painstaking effort
- Intellectual resources: improve quality of work

Intellectual resources: improve quality of work
Persistence

Remain focused, committed, do not lose sight or get discouraged
Striving for accuracy

Desire for exactness and fidelity, do not accept mediocrity
Habits of Mind: Dimensions of growth

Meaning

Alertness

Value

Commitment

Capacity
Habits of Mind: Growth levels of the dimensions
What description would we like students to attach to the meaning of the Habit of Mind?

Narrow ↔ Complex
What value would we like students to attach to the importance of the Habit of Mind?
understanding the dimensions of the HoM

- How many strategies/tools should students possess to demonstrate capacity for the Habit of Mind?
How alert are students to recognize situations that call for the application of the Habits of mind? Do they know when to apply a Habit of Mind?

Externally prompted ↔ Internally attuned
How committed are students to self-assess and self-manage the growth of their Habits of Mind?
Aim
- To create a profile of the Habits of Mind of pre-service teachers (focus on the 1st year);
- Encourage the growth of the HoM that appear to be fragile
- Academic improvement (long-term goal)
- Enhance teaching practice

Empirical research:
2012 - 2015

Data Collection: mixed method
- Self-developed Questionnaire
- Informal discussions
- Self-evaluation checklists
- Reflection
- Focus group interviews with students

Participants
Purposive sampling:
2012 First year pre-service teachers at the NWU Vaal Triangle campus, and the 2nd, 3rd, and 4th year students
BEd– 1st year student profile: NWU Vaal Triangle Campus: 2012

320 female = 64%
180 male = 36%

Asian &
Coloured: 2%
Black: 60%
White: 38%

Assumption: Students do not have well developed Habits of Mind
Empirical research

1. **Baseline descriptive data**: the perceptions of pre-service teachers at the North-West University studying towards a four year BEd degree regarding the development of their Habits of Mind.
2. Self-constructed Likert-scale questionnaire that focused on four-level descriptions (novice (1), able (2), skilled (3), sophisticated (4) linked to each of the HoM.
3. Students had to rate themselves according to one of the levels.
4. Open questions:
   - Students’ opinions about the **meaning** and **value** of the HoM
   - Indication of the **strategies** they have available to apply the HoM (capacity)
# Data analysis

<table>
<thead>
<tr>
<th>Year group</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; (301)</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; (196)</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; (171)</th>
<th>4&lt;sup&gt;th&lt;/sup&gt; (47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habits of Mind</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
<td>Mean</td>
</tr>
<tr>
<td>1. Persistence</td>
<td>3.02</td>
<td>3.09</td>
<td>3.29</td>
<td>3.34</td>
</tr>
<tr>
<td>2. Managing impulsivity</td>
<td>2.94</td>
<td>3.04</td>
<td>3.12</td>
<td>2.93</td>
</tr>
<tr>
<td>3. Listening with understanding and empathy</td>
<td>3.14</td>
<td>3.11</td>
<td>3.34</td>
<td>3.35</td>
</tr>
<tr>
<td>4. Thinking flexibly</td>
<td>2.85</td>
<td>2.92</td>
<td>3.09</td>
<td>3.00</td>
</tr>
<tr>
<td>5. Thinking about your own thinking</td>
<td>2.69</td>
<td>2.90</td>
<td>2.97</td>
<td>3.02</td>
</tr>
<tr>
<td>6. Striving for accuracy</td>
<td>2.90</td>
<td>2.81</td>
<td>3.02</td>
<td>3.02</td>
</tr>
<tr>
<td>7. Questioning and posing problems</td>
<td>2.86</td>
<td>2.84</td>
<td>3.05</td>
<td>3.21</td>
</tr>
<tr>
<td>8. Applying past knowledge to new situations</td>
<td>2.95</td>
<td>3.18</td>
<td>3.34</td>
<td>3.33</td>
</tr>
<tr>
<td>9. Thinking and communicating with clarity</td>
<td>2.98</td>
<td>2.96</td>
<td>3.11</td>
<td>3.21</td>
</tr>
<tr>
<td>10. Gathering data through all senses</td>
<td>2.85</td>
<td>2.88</td>
<td>3.08</td>
<td>3.00</td>
</tr>
<tr>
<td>11. Creating, imagining, innovating</td>
<td>2.69</td>
<td>2.89</td>
<td>3.01</td>
<td>3.00</td>
</tr>
<tr>
<td>12. Responding with wonderment and awe</td>
<td>2.90</td>
<td>2.87</td>
<td>3.00</td>
<td>2.88</td>
</tr>
</tbody>
</table>
## Data analysis

<table>
<thead>
<tr>
<th>Year group</th>
<th>1&lt;sup&gt;st&lt;/sup&gt; (301)</th>
<th>2&lt;sup&gt;nd&lt;/sup&gt; (196)</th>
<th>3&lt;sup&gt;rd&lt;/sup&gt; (171)</th>
<th>4&lt;sup&gt;th&lt;/sup&gt; (47)</th>
</tr>
</thead>
<tbody>
<tr>
<td>13. Taking responsible risks</td>
<td>2.98</td>
<td>2.99</td>
<td>3.10</td>
<td>3.31</td>
</tr>
<tr>
<td>15. Thinking interdependently</td>
<td>2.81</td>
<td>2.71</td>
<td>2.75</td>
<td>2.60</td>
</tr>
<tr>
<td>16. Remaining open to continuous learning</td>
<td>2.95</td>
<td>2.89</td>
<td>3.03</td>
<td>2.95</td>
</tr>
</tbody>
</table>

Yellow: highest means on the four-point scale
Green: lowest means on the four-point scale
Interpretation of results

The majority of the students regarded themselves as being “able” (2) to “skilled” (3) in the application of the HoM.

<table>
<thead>
<tr>
<th>Skilled</th>
<th>Good understanding, a range of strategies to apply the HoM, spontaneous application in familiar situations, knows value/benefit for academic work and real life, starts to evaluate own effectiveness but needs assistance with change and adaptations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Able</td>
<td>Fair understanding, has simple strategies to apply the HoM, still mostly externally prompted, starts to realise the value/benefit for academic work, with direction can start to evaluate own effectiveness</td>
</tr>
</tbody>
</table>
Data analysis: open questions

- Used to verify the responses to the closed questions
- Used to verify the lecturers assumptions at the onset of the study
- Some HoM broader understanding of meaning and value and greater capacity
- In some instances no strategies were reported that assist them in the application of the HoM: novice
# Data analysis: examples of responses open questions

## Meaning and importance of accuracy

**Students:** not to make mistakes, get good results, success

**Ideal:**
To be efficient and work more effectively, to be precise in what I am doing, to adhere to guidelines/criteria, to achieve goals (ideal responses)
# Data analysis: examples of responses open questions

## Strategies to work accurately

| Students: | I read instructions, I use dictionaries  
I do not know |
|-----------|-------------------------------------------------|

| Ideal: |  
Peer- review strategy  
Working according to a checklist with criteria  
Reflecting on my work before submission  
Persisting with a task (ideal responses) |
Data analysis: examples of responses open questions

Meaning and Importance of persistence

**Students**: Success, avoid mistakes

**Ideal**: To be focused, To achieve goals, to be more successful with problem-solving, to complete tasks, (ideal responses)
### Data analysis: examples of responses open questions

<table>
<thead>
<tr>
<th>Strategies to persist</th>
</tr>
</thead>
</table>
| **Students**: Consult books and the internet  
I ask for help  
I do not know |

<table>
<thead>
<tr>
<th>Ideal:</th>
</tr>
</thead>
</table>
| Reflection (planning, monitoring, evaluation)  
Having strategies to solve problems/complete tasks  
(Elements of a Plan (Feuerstein, 1982) (ideal responses) |
Interpretation: open questions

**Meaning**
- Narrow – to be expanded
- Only a basic understanding

**Value**
- Low – increase awareness
- Personal life and academic context

**Capacity**
- Limited – to be extended
- Only basic strategies
We argue that when meaning and value are narrow and low, and there is a limited capacity to apply the HoM, students might therefore not be alert and committed to apply the HoM.
Based on the questionnaire data we decided to .......
Infuse Habits of Mind into the curriculum

- None of the habits appear to be developed well and in need of encouragement
- Collaborative decision by all the staff members
  - Accuracy
  - Persistence
- Focus on the **meaning, value and capacity** dimensions. Collaborative decisions taken on the meanings, values and strategies to encourage capacity
# Accuracy and Persistence

<table>
<thead>
<tr>
<th>Accuracy</th>
<th>Persistence</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meaning</strong></td>
<td><strong>Meaning</strong></td>
</tr>
<tr>
<td>Comply with criteria</td>
<td>Stick to a task</td>
</tr>
<tr>
<td>Taking greater care with work</td>
<td>Not giving up</td>
</tr>
<tr>
<td><strong>Value</strong></td>
<td><strong>Value</strong></td>
</tr>
<tr>
<td>To avoid mistakes</td>
<td>To be able to complete a task successfully</td>
</tr>
<tr>
<td><strong>Strategies</strong></td>
<td><strong>Strategies</strong></td>
</tr>
<tr>
<td>Checklist</td>
<td>Elements of a plan</td>
</tr>
<tr>
<td>Peer- review</td>
<td></td>
</tr>
</tbody>
</table>
# Examples of the strategies

<table>
<thead>
<tr>
<th>HABITS OF MIND</th>
<th>ACCURACY</th>
<th>PERSISTENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meaning</strong></td>
<td>Comply with criteria</td>
<td>Stick to a task</td>
</tr>
<tr>
<td></td>
<td>Taking greater care with work</td>
<td>Not giving up</td>
</tr>
<tr>
<td><strong>Value</strong></td>
<td>To avoid mistakes</td>
<td>To be able to complete a task</td>
</tr>
<tr>
<td></td>
<td>To achieve high standards</td>
<td>successfully</td>
</tr>
<tr>
<td><strong>Strategies</strong></td>
<td>Checklist, Peer-review</td>
<td>Elements of a plan</td>
</tr>
</tbody>
</table>
Examples of the strategies ... elements of a plan

Check - list

Check our work

Define our goals

Look at what we have

What strategy will we use

What shall we start

Where shall we start

What are the rules

Check our work

Define our goals

Look at what we have

What strategy will we use

What shall we start

What are the rules

Feuerstein & Hoffman, 1995:33
Examples of the strategies ... elements of a plan

1. Define our goals
   Know what you have to do, what is expected, what are the criteria, how much does the task count?

2. Look at what we have (information)
   What do you know that will help you to complete the task? What do you still need to complete the task? Find the information that you need before your start.

3. What strategy shall we use?
   Define, summarise, compare, write an essay. Make sure you know what the strategy requires you to do.

4. Where shall we start?
   Decide with which part of the task you will start first, what you will do second, third and so forth? It is helpful to make a flow chart to sequence your work.

5. What are the rules?
   Take note of the rules/criteria that the lecturer gives to complete the task. This will be contained in the checklist that will be used to mark your task.

6. Check our work
   Check your work against the checklist to make sure you have adhered to all rules/criteria before you submit your work.
# Checklist

<table>
<thead>
<tr>
<th></th>
<th>Student</th>
<th>Peer Maat</th>
<th>N.A Nvt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Outline map is recogniseable / Buitelynkaart is herkenbaar</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Correct positioning of Geographical data on map / Korrekte ligging van Geografiese data op kaart</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Completeness of Geographical data / Volledige aanbieding van Geografiese data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Discussion complies with mark allocation / Bespreking voldoen aan puntetoekenning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Discussion includes additional data or information / Bespreking bevat addisionele feite / inligting</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Answer meets requirements of the type of question / Antwoord voldoen aan die vereistes van die vraag</td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Definition – sweet and short / Definisie – kort en bondig</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b</td>
<td>Discussion – comprehensive / Bespreking - omvattend</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c</td>
<td>Illustrate – visual &amp; written explanation / Illustreer – visuele &amp; skriftelike verduideliking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>List – just give the facts / Noem – gee slegs die feite</td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Compare – list facts in table / Vergelyk – noem feite in tabel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>f</td>
<td>Evaluate – your opinion as well as advantages and disadvantages / Evaluateer – eie mening sowel as voor- en nadele</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>General impression of the assignment / Algemene indruk van die opdrag</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Good / Goed**

1 2 3

**Poor / Swak**

4
Preliminary findings

- Students’ writing skills have improved
- Students do indeed try to complete their tasks as best as they can
- They want to do things correctly
- Over time it will become automatic (i.e., Habit)
- Work is structured better
Preliminary findings

- Some students superficially complete their checklist
- Some students use different coloured pens and fake a peer-review
- Some students not accurate yet as they tick that they did something but they really did not do it
- Some students do not follow elements of a plan, essays are confusing and not in order as a result
Preliminary findings

- It's not a quick fix. Fostering a new habit and quitting old ones takes time!
- The payoff is tremendous. If we get it right, our students are set for life!
- This is a "one for all, all for one" approach. Nobody should be left behind and all staff need to get on board.
- Ultimately, what we as lecturers teach students about Habits of mind, they will need to foster their learners own habits when they start teaching at schools.
Focus group interviews

- After the first semester, 20 students took part in focus group interviews
Focus group interviews

- HoM contributes to greater independence
- Habits of Mind = success, progression and personal growth
- Transparency regarding assessment criteria
- Approach work more focused
- Increased awareness of negligence
- Positive influence on planning work and reducing mistakes
- Positive influence on academic achievement/better marks
- The use of the green and yellow cards helped a lot in applying the HoM
- Greater awareness of mistakes
- Assist in overcoming obstacles
- Improved motivation to learn and achieve better marks
- Positive influence on progress and task completion
- Positive influence on sequencing task completion
Focus group interviews

Negative feelings and experiences with HoM

- More explanations regarding the meaning and value of the Habits: some students do not understand the concept HoM
- Lecturers failing to give feedback on work
- More motivational support to students
- Would like to receive credit for applying the HoM
- No time for applying HoM in tests and exams
- Inconsistent approaches by lecturers in dealing with the HoM
- Would like lecturers to be more motivated to use the HoM
- Would like lecturers do not set an example: mistakes in tests, fail to return marked tests and assignments
Focus group interviews

Suggestions to improve the implementation of HoM

- Motivating students more to use the HoM
- Add other HoM next year
- Continue with the use of the yellow and green cards
- A separate period for teaching HoM
- Explaining and practicing the use of HoM in smaller groups
- Allocating marks to the application of the HoM
- Additional time to apply HoM during tests and exams
Focus group interviews

We wanted to show you that we could do something

Just completed the questionnaire because we had to

We gave you what we thought you wanted to hear

If we know something does not count marks we just write anything

I thought that because I knew what the concepts meant, I was also good at applying them

We were not honest
Interviews with staff
Interviews with students
Overall preliminary conclusions

- Difficult to manage in large groups: peer review strategy
- Some of the lecturers not as committed as others
- Peer review strategy difficult for students if not utilized in the classroom
- Time: reliance on students' own evaluation to determine growth and development
- It will take time to instil the HoM. Students still have to be reminded of using the checklist and working according to a plan.
- Many students are taking the HoM seriously and are committed to work accurately and persistently
- Improvement in quality of work and academic performance noted
Implications an Recommendations

1. Encourage the development of the HoM

- Ideal not an option
- Opportunities to practice and apply
- Explicit modelling
- Focus: what to do if an answer is unknown
Implications and Recommendations

2. Accept the challenge to develop the HoM

- Infusing HoM across the curriculum
- Teachers need to possess the HoM before they can nurture these at school
- Workplace Integrated Learning
- Whole-school approach
  Dedication
  Reinforcement
Implications and Recommendations

3. Revisit the educational outcomes for teacher training
Final thoughts

- Habits of Mind refer to what the best teachers have always taught, often implicitly.
- Art Costa has given us a focus and a language that allows all teachers to teach the Habits of Mind explicitly.
  
  James Anderson, 2011

By infusing the HoM into the curriculum for teacher training, we will develop more "thought-full" teachers, who will be able to develop more "thought-full" learners and more "thought-full" schools and ultimately more "thought-full" students entering Higher Education.
“We ourselves (teachers) have to first become that which we want others (learners) to be.”
Paul Marshal
Resources


Acknowledgements

We would like to acknowledge the National Research Foundation for the research grant received to support the continuation of the project.

Thank you