Peer Assisted Learning (PAL) as an educational tool in training microscopy in geology

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Microscopy in earth sciences: the way to PAL

Why?

– Microscopy is an important skill in many disciplines in the earth sciences
– Number of practical session is perceived to be insufficient
– No room for extra regular practical sessions

→ Overcharged schedule
Microscopy in earth sciences: the way to PAL

Contribution to the educational scheme

- Extra time to train technical skills
- Great opportunity to learn from and with each other
  - Putting observations and interpretations into words
    → Gaining a better and deeper understanding
- PAL sessions are not course-bounded:
  - Microscopic techniques in different circumstances
  - Emphasizing relationship between different courses
    i.e. mineralogy, petrology, structural geology, …
- Encouraging student independency
  - Students take own responsibility in learning process
- Enlarging confidence
Organization

STUDENT LEARNERS: 2nd and 3rd year bachelor

- Different levels
- Different courses → microscopy is not course-bounded
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STUDENT LEADERS: 1\textsuperscript{st} and 2\textsuperscript{nd} year master
- 7 to 8 volunteers, 2 by 2 $\rightarrow$ 2 sessions each
- Training:
  - Organizing group discussions, redirecting questions, guiding search for answers in books, notes,…
  - Self-evaluation after session $\rightarrow$ adjustments
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About 8 EVENING SESSIONS of 2,5 hours
First trial period

= LEARNING EXPERIENCE

Generally:

– Difficulties in organization
– Low attendance → “Unknown-Unloved”
– Limited contributions of students
– To much resemblance of regular practical sessions

BUT

– Appreciated and considered useful by the students

⇒ Analysis by SWOT

(Strengths – Weaknesses – Opportunities – Threats)
First trial period

→ Analysis by SWOT

(Strengths – Weaknesses – Opportunities – Threats)

**STRENGTHS**

→ “secure environment” to ask questions, to make mistakes,… … so to learn
→ free attendance → only motivated students participate
→ students recognize usefulness of the PAL sessions on microscopy
First trial period

WEAKNESSES

⇒ student-leaders can pass on incorrect information
⇒ free attendance ⇒ drop-out of students
⇒ do we reach the students that need the extra practice the most?
First trial period

OPPORTUNITIES

⇒ Experience cross-disciplinarity of microscopy
⇒ More time to practise microscopy skills
⇒ Learn to discuss about observations and interpretations
⇒ Share course experiences
⇒ Develop didactic, social and communication skills
First trial period

THREATS

- Overcharged time schedule of students of both student-learners and students-leaders
- Insufficient training of student-leaders
- Frequent change of leaders
- Low attendance
- Limited contribution of students
- Perception of PAL as regular practical session
- Unfamiliarity
First trial period

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→ Some of these threats are dealt with in the 2nd trial period
→ Some threats remain
Second trial period

Diminishing threats - How to:

1. Increase attendance?
2. Encourage contribution of the students?
   – in advance
   – during the sessions
3. Raise level of discussions?
Second trial period

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Approach second trial period:

1. Improvement of informing student-learners and PAL-leaders:
   - emphasize difference with regular practical session
   - emphasize importance of personal contribution
2. Start earlier in semester
3. More guidance of the leaders
4. Installation of a camera connected to a microscope
Second trial period

Preliminary results

- Attendance is variable, max. 10 students
- More discussions
  - when more students attend
  - due to the projection of images
- PAL-leaders guide, don’t teach

- Attendance is still variable, min. 2 students
- Limited contributions in advance
What’s next?

– Evaluation 2nd trial period

– Starting PAL in first semester

– Opening PAL for more disciplines in geology