A BETTER UNDERSTANDING OF THE ROLE OF CLASSROOM TEACHING PRACTICES IN THE SUCCESS OF UNIVERSITY STUDENTS

Presentation of an observation tool and initial results

Justine Jacquemart – Mikaël De Clercq – Benoît Galand



Student success at university

- Expansion of higher education (access and success)
- High failure and drop-out rates
- Social inequality



Research into the issue of success

- Focused on student variables
- Student variables account for less than half the variance in success



Contextual variables in the issue of student success

- Few empirical studies in the context of higher education
- In the context of compulsory education, classroom teaching practices are an important predictor of success

(Allen et al., 2013; De Clercq, 2017; De Clercq & Perret, 2020; Gale & Parker, 2014, 2017; Lipowsky et al., 2009; Rodriguez-Hernandez et al., 2020)

RESEARCH PROJECT IN COMPULSORY EDUCATION (1/2)

Classroom Assessment Scoring System

(CLASS; Hamre & Pianta, 2007)

- Several large-scale studies
- Theoretical basis
- On-site observations
- Tool CLASS™
- Sample of 4000 classes
- Empirical validation

Emotional support

Classroom organization

Instructional support

(Hamre et al., 2007; Mashburn et al., 2008; Pianta et al., 2008; Pianta & Hamre, 2009)

RESEARCH PROJECT IN COMPULSORY EDUCATION (2/2)

Three Basic Dimensions

(TBD; Klieme et al., 2001)

- TIMSS video study
- Compare mathematics teaching methods
- First descriptive model of practices
- Theoretical and empirical approach
- Theoretical framework of teaching quality
- TBD framework
- Sample of 500 classes
- Empirical validation

Student support

Classroom management

Cognitive activation

(Klieme et al., 2001; Kunter et al., 2007; Lipowsky et al., 2009; Fauth et al., 2014)

TWO CONTEXTS

Compulsory education

≠

- Registration and participation
- Autonomy
- Work from home
- Assessment process

Higher education

≈

- Classroom sessions
- Fundamental teaching objectives :
  - *maintain motivation and involvement*
  - *promote a good classroom climate*
  - *ensure understanding*
  - *encourage reflexion on the subject*

(Trautwein & Bosse, 2017)

Limitations of current studies

- **Detailed analysis** of the effects of the **dimensions of teaching practices** on the academic success.
- Lack of a convincing **theoretical model** and **reliable tools.**

Main goal of our project

- Better understanding of the **academic success of higher education students**
- Considering **classroom teaching practices** in conjunction with individual student factors.

STUDY PROJECT

Study 1

Aim of the study 1 : Conceptualising a model of teaching practice adapted to higher education and validating an observation tool linked to our theoretical model.

STUDY PROJECT

Research questions

RQ1 – Is there any evidence of the content validity of the observation protocol?

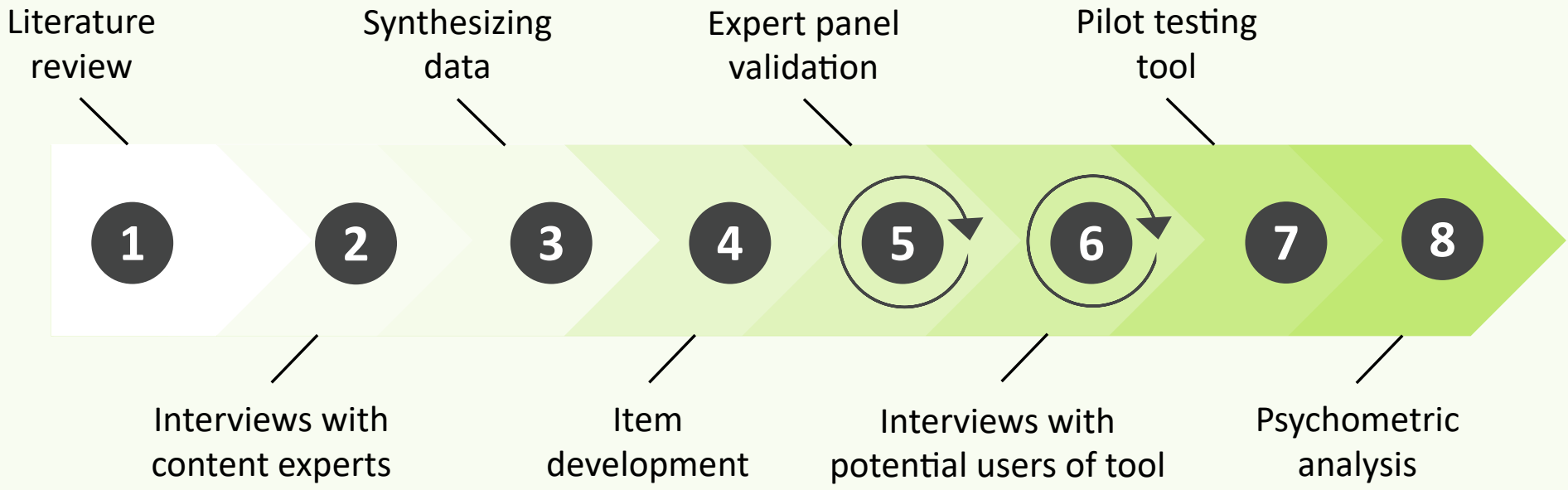
RQ2 – What is the internal reliability of the observation protocol?

RQ3 – What are the teaching practices of a sample of university teachers?

VALIDATION PROCESS FOR AN OBSERVATION PROTOCOL

METHODS

Eight-stages process



(Artino et al., 2014; Smith et al., 2013)

INITIAL REFERENCE FRAMEWORK

4 categories

- **CLASSROOM MANAGEMENT**
- **SOCIO-AFFECTIVE SUPPORT**
- **LEARNING STRUCTURE**
- **COGNITIVE ACTIVATION**

9 sub-categories

- ***Interest and motivation management***
- ***Time and productivity management***
- ***Attention and participation management***
- ***Regard for student perspective***
- ***Teacher proximity***
- ***General support***
- ***Differentiated support***
- **Cognitive engagement**
- ***Developing higher-order skills***

34 indicators

- *Discours expressif et mouvement*
- **Discours neutre ou incompréhensible*
- *Mise en contexte*
- **Tâches extra cours*
- *Utilisation productive du temps*
- **Discours extra cours*
- **Rythme inadéquat*
- *Gestion de la participation*
- *Réorientation des comportements inadéquats*
- *Gestion de l'attention*
- **Absence de surveillance*
- *Opportunités de choix/de liberté*
- **Non considération*
- *Prise en compte des opinions des étudiant·es*
- **Enseignement ne soutenant pas l'autonomie (style contrôlant)*
- *Climat positif*
- *Approche constructive des erreurs*
- **Climat négatif*
- **Pression sur les performances*
- *Clarté*
- **Manque d'explication, exposé confus et rythme inadapté*
- *Structuration*
- *Emphase*
- *Réaction constructive aux difficultés*
- *Soutien à la compréhension*
- *Soutien à la différenciation et à l'adaptation*
- *Rythme adapté*
- *Questionnement*
- *Explorer et activer les connaissances antérieures*
- *Dialogue pédagogique*
- *Prise de recul et mise en lien*
- *Tâches d'analyse/de recherche*
- *Travail/discussion de groupe, apprentissage discursif et co-constructif*
- *Soutenir la métacognition*

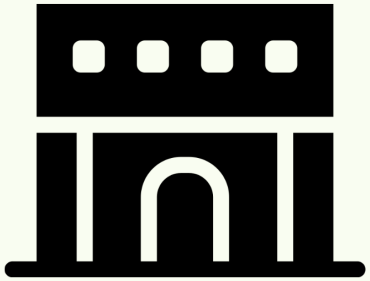
METHODS

SAMPLE

METHODS



6 universities

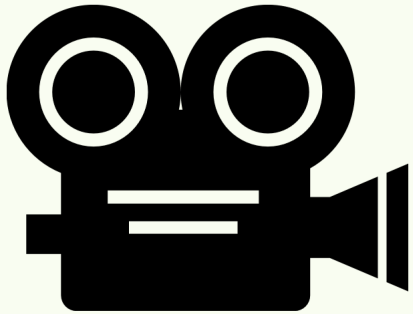


Various faculties

(e.g. Faculty of Psychology and Education; Faculty of Philosophy, Arts and Letters; Faculty of Architecture; Faculty of Law)



96 teachers



Observations

RQ1 – Is there any evidence of the content validity of the observation protocol?



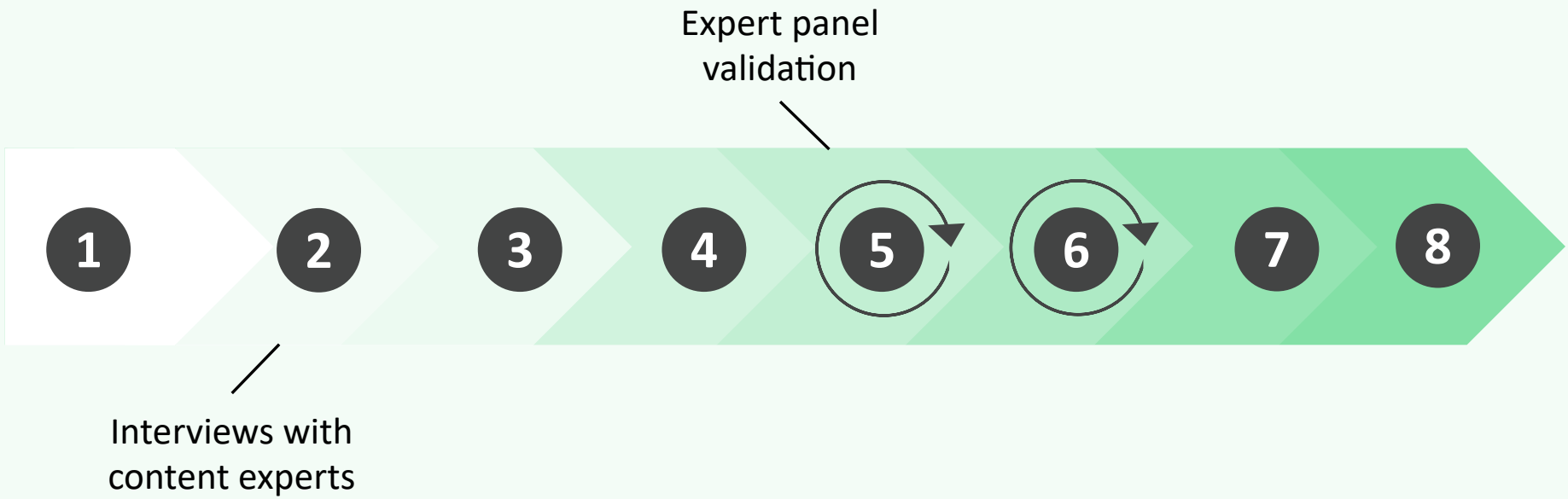
RESULTS

RQ2 – What is the internal reliability of the observation protocol?

RQ3 – What are the teaching practices of a sample of university teachers?

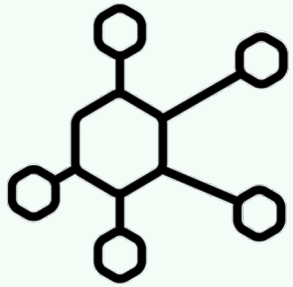
CONTENT VALIDITY

RESULTS



RQ1 – Is there any evidence of the validity of the observation protocol?







RQ2 – What is the internal reliability of the observation protocol?

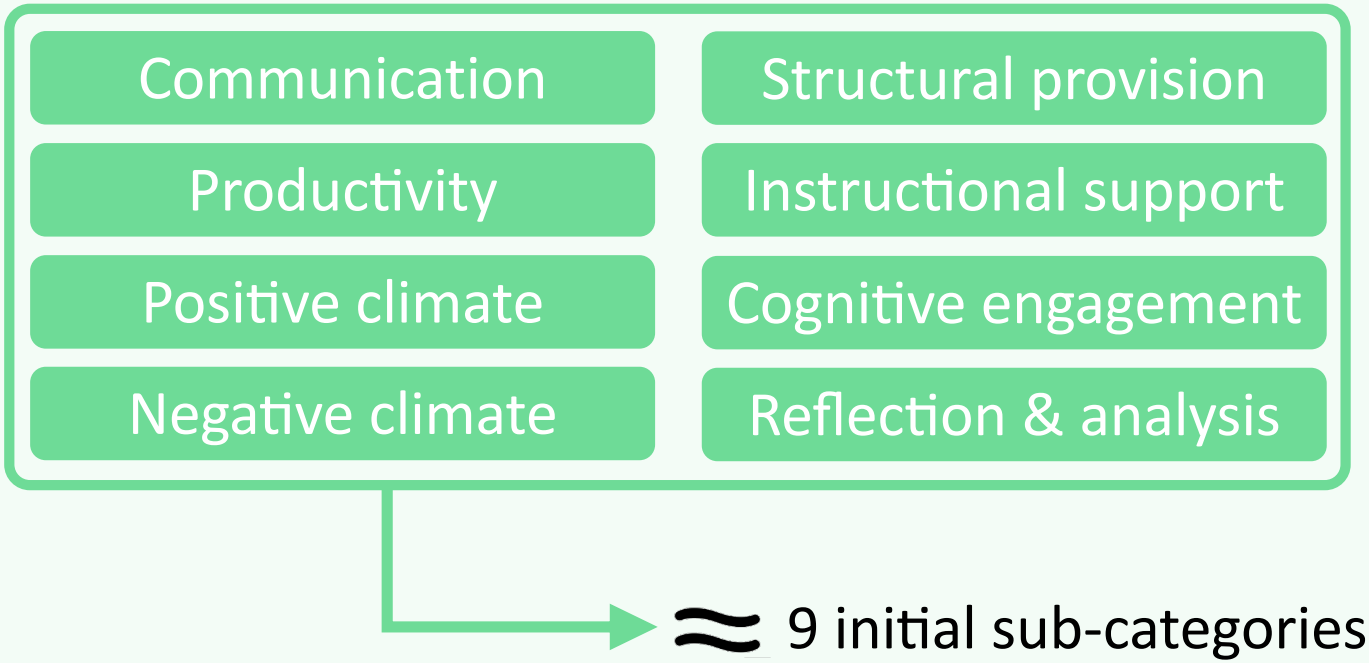
RQ3 – What are the teaching practices of a sample of university teachers?

PRINCIPAL COMPONENT ANALYSIS

RESULTS

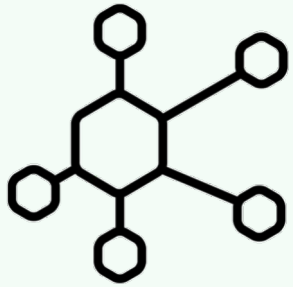
Objective: summarise information from our data

- 34 initial items
- 6 items removed
- 8-factors structure



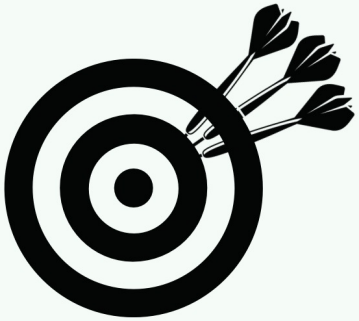
RQ1 – Is there any evidence of the validity of the observation protocol?







RQ2 – What is the internal reliability of the observation protocol?



RQ3 – What are the teaching practices of a sample of university teachers?



INTER-RATER RELIABILITY



Reliability for double coding of indicators every five minutes :

- Cohen's alternative weighted Kappa (κ)
- *κ = 0,77*
- Substantial agreement

Reliability for aggregate scores :

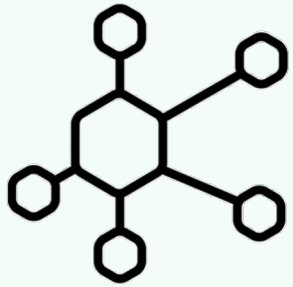
- Intra-class correlation coefficient (ICC)
- *ICC = .904, p < .001 (95% CI : .891 à .915)*
- Excellent reliability

13% of all data was assessed independently by two observers.

(Cohen, 1968; Cicchetti, 1994; Landis & Koch, 1977)

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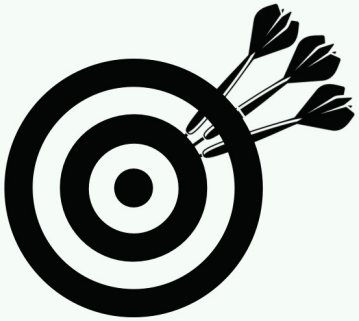




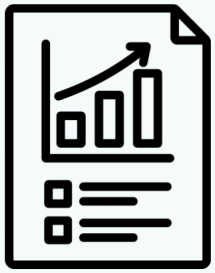


RESULTS

RQ2 – What is the internal reliability of the observation protocol?



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DESCRIPTIVE ANALYSES - DISPERSION OF SCORES

RESULTS

3 items coded only 0 or 1 :

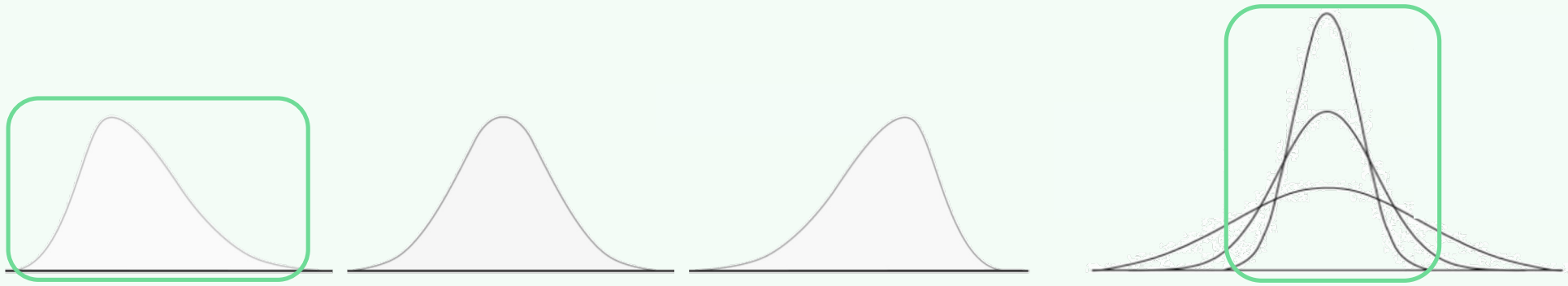
- *threathening and competitive climate*
- *explore thinking processes*
- *connect and take a step back*

3 items with little dispersion around the means:

$(.0025 \leq \bar{x} \leq .0074)$

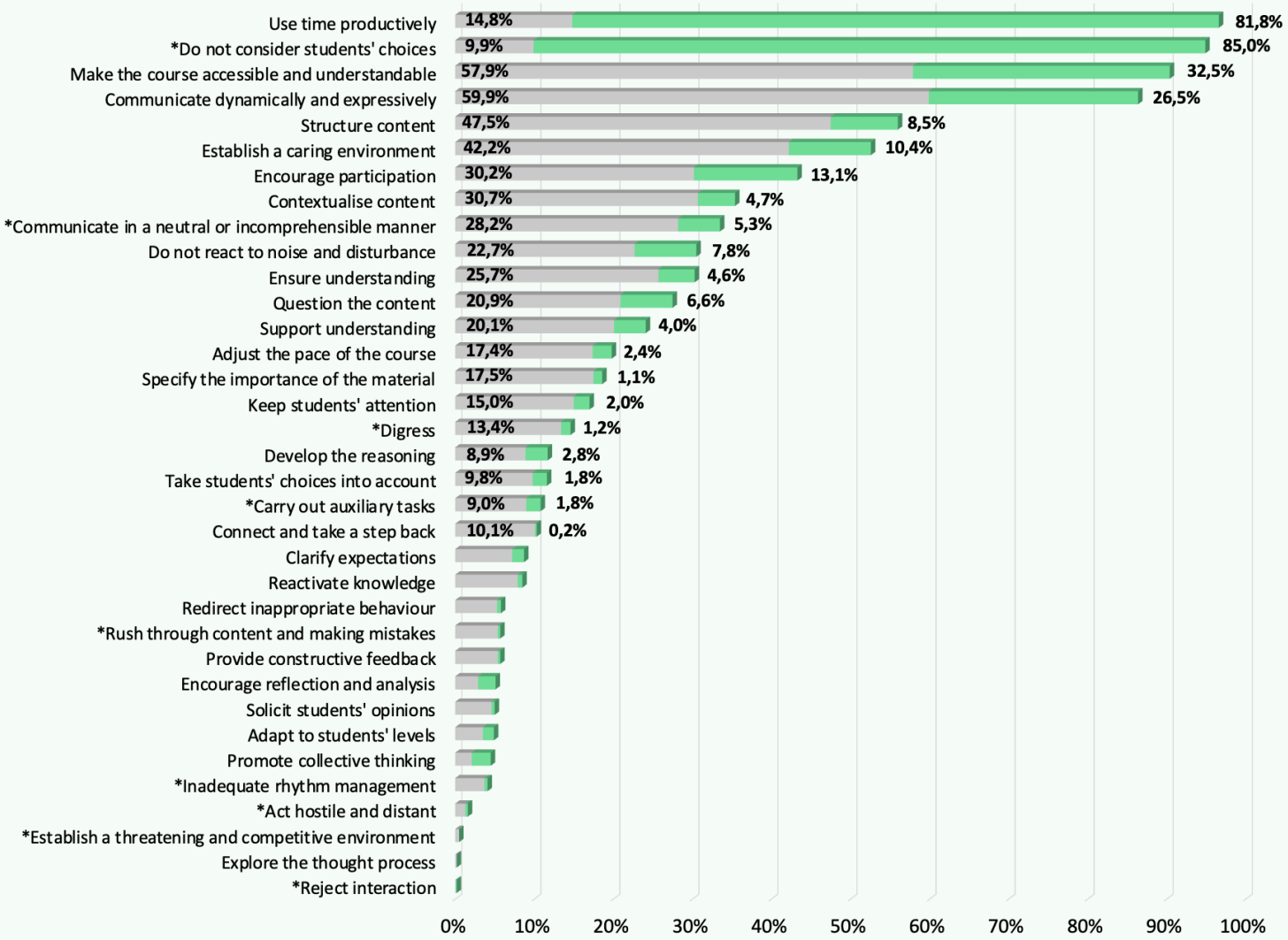
- *refuse interaction*
- *threathening and competitive climate*
- *explore thinking processes*

21 indicators show a distribution that deviates from a normal distribution

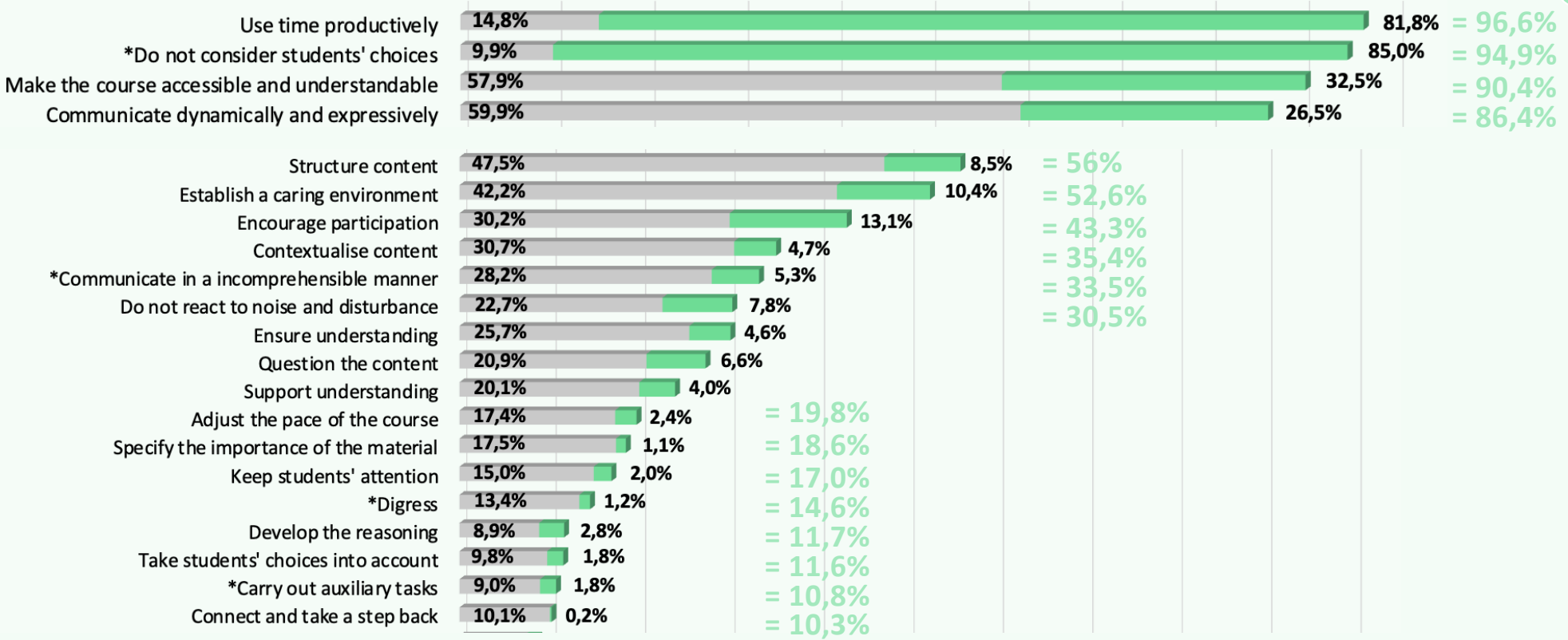


DESCRIPTIVE ANALYSES - CODING FREQUENCY

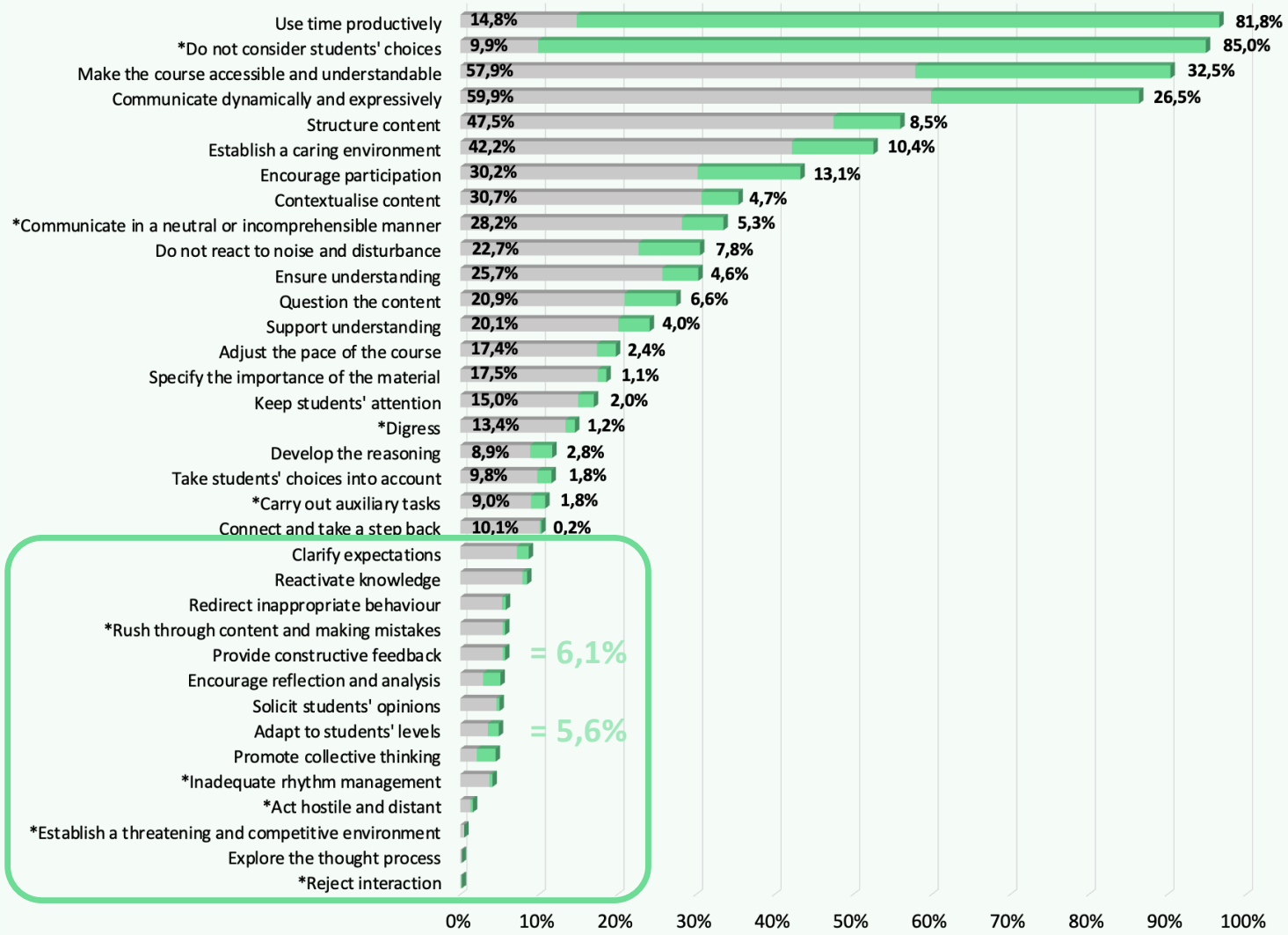
RESULTS



DESCRIPTIVE ANALYSES - CODING FREQUENCY



DESCRIPTIVE ANALYSES - CODING FREQUENCY



DESCRIPTIVE ANALYSES - AVERAGE SCORES

RESULTS

$\bar{x} > 1,5$

- Use time productively
- Not considering students' choices

- *L'enseignant·e prend les décisions (par exemple : continuer ou faire une pause, travailler seuls ou en groupe, ...), les choix sont contraints.*
- *L'avancement des activités se déroule sans que les étudiant·es n'aient leur mot à dire, le moindre choix à faire.*
- *L'enseignant·e ne donne pas d'explication sur les raisons qui motivent le choix des activités.*

$0,5 < \bar{x} < 1,5$

- Communicate dynamically and expressively
- Make the course comprehensible and accessible
- Structuring content
- Establishing a caring environment
- Encourage participation

$\bar{x} < 0,5$

- *Communicate in a incomprehensible manner
- Contextualising content
- *Carry out auxiliary tasks
- *Digressing
- *Inadequate rhythm management
- Redirecting inappropriate behaviour
- Keep students' attention
- Not reacting to noise and disturbance
- Taking students' choices into account
- *Reject interaction
- Soliciting students' opinions
- Provide constructive feedback
- *Act hostile and distant

- *Establishing a threatening and competitive environment
- *Rushing through content and making mistakes
- Clarify the importance of the subject
- Supporting understanding
- Ensure understanding
- Adapt to students' levels
- Adjusting the pace of the course
- Question the content
- Reactivate knowledge
- Develop the reasoning
- Connect and take a step back
- Promoting collective thinking
- Explore the thought process

DESCRIPTIVE ANALYSES - AVERAGE SCORES

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- ❑ *L'enseignant·e présente le but et les objectifs du cours.*
- ❑ *L'enseignant·e fait un récapitulatif de ce qui a déjà été vu et/ou fait un résumé des notions qui ont été abordées.*
- ❑ *L'enseignant·e fait un rappel ou fait des liens avec des points de matière vus précédemment ('la semaine passée nous avons parlé de …').*

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- ❑ *L'enseignant·e utilise une erreur pour développer le cours.*
- ❑ *L'enseignant·e donne des encouragements, des feedbacks et des commentaires bienveillants, positifs et/ou constructifs.*
- ❑ *L'enseignant·e a une approche positive et constructive des erreurs.*

DESCRIPTIVE ANALYSES – SUB-DIMENSIONS MEANS

RESULTS

$\bar{x} > 1,5$	• Productivity
$0,5 < \bar{x} < 1,5$	• Communication • Structural provision
$0.05 < \bar{x} < 0,5$	• Instructional support • Positive climate • Cognitive engagement
$\bar{x} < 0,05$	• Negative climate • Reflection & analysis



DISCUSSION

CONCLUSION

- An approach aimed at developing a tool for systematic observation of teaching practices at university, rooted in theory
- The tool is reliable and offers initial proof of validity
- Precise measurements after just three hours of training

LIMITATIONS

- Voluntary participation
- Stability of practices
- Tool not sensitive enough to identify some teachers' practices

Thank you for your attention

Justine Jacquemart – justine.jacquemart@uclouvain.be
Mikaël De Clercq – mikael.declercq@uclouvain.be

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