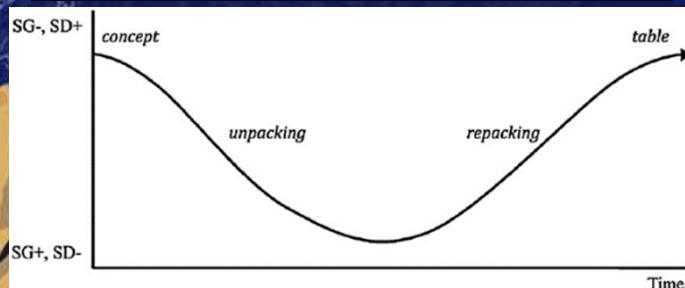
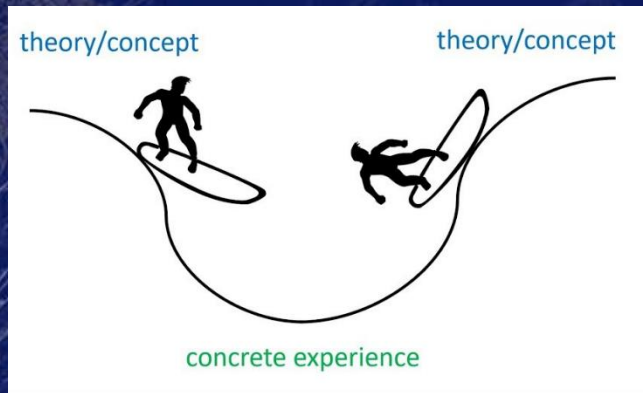




# Tutors' Use of Semantic Waves as a Teaching Strategy: A Case Study



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# Outline of Presentation



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- Background of study
- Aim and Objectives
- Methodology
- Theoretical framework
- Findings and discussion
- Conclusion and Way forward

# Background



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- The oral hygienist provides preventive, educational, therapeutic services to individuals and populations of all ages.
- The qualification in the profession of Oral Hygiene has evolved from a 2-year diploma initiated in 1974 to a 3-year BOH degree in 2010
- Independent private practice for Oral Hygienists was introduced in 2012
- Selection criteria for prospective students



# Background



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Challenge by BOH Students:

- One of the requirements for independent practice is the administration of local anaesthesia
- The Local Anaesthesia (LOS) module is taught in the 2<sup>nd</sup> year of study and consists of 2 components (1) Local Anaesthesia (LA) and (2) Oral Surgery (OS)
- LA component is more complex and difficult as it requires understanding of concepts, chemistry; pathophysiology (medicine), as well as management of medical emergencies
- **Intervention: Introduction of Tutorials in 2017 to address the poor pass rates in the LOS modules**



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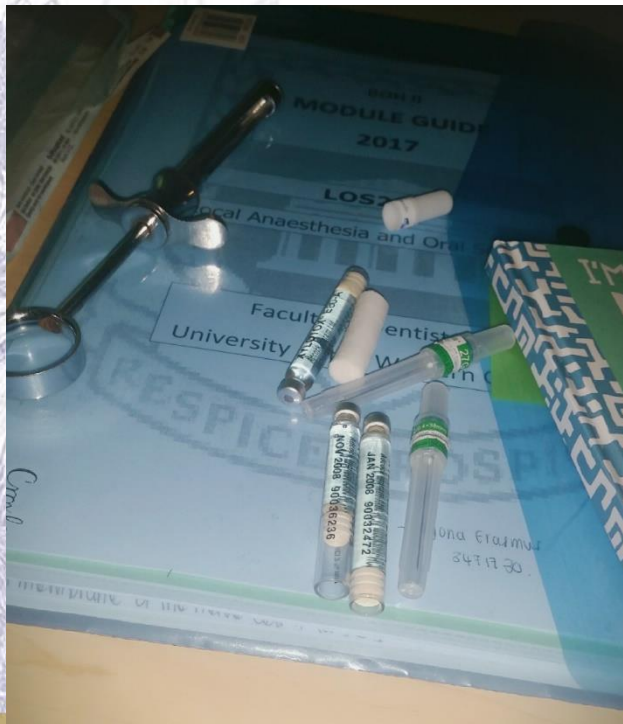


# Tutorial Lessons

- Tutorial lessons – are small group teaching (25 students)
- It is interactive and student-centred (allowing students to engage with the tutor)
- The tutor is a senior student in the Dentistry department.
- Tutorials takes place once a week – 1 hour duration.

# Aim of the study

- The aim of the study was to determine how BOH tutors' build and transfer LOS knowledge to the students.





# Research Question

What pedagogical strategies were used by the tutors to bring about understanding of difficult concepts?





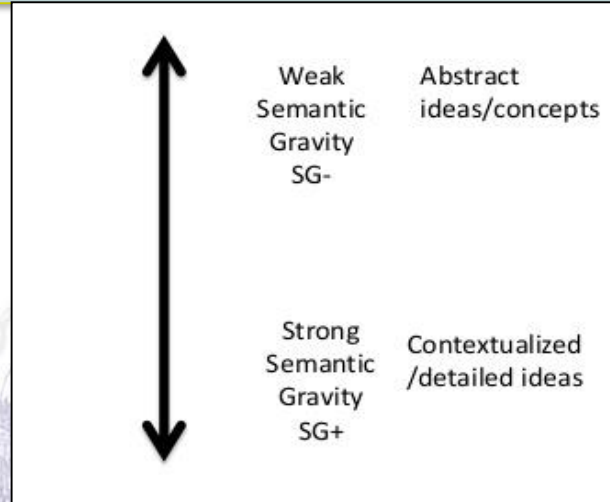
# Methodology

- Case Study: Faculty of Dentistry
- Participants: 2<sup>nd</sup> year Bachelor of Oral Health (BOH) students & Peer tutors
- Course: Local Anaesthesia and Oral Surgery (LOS 200)
- Data collection: One-on-one and focus group interviews, & review of tutors' lesson plans.
- Data was qualitatively organised and analysed.
- Report on one lesson for this presentation.

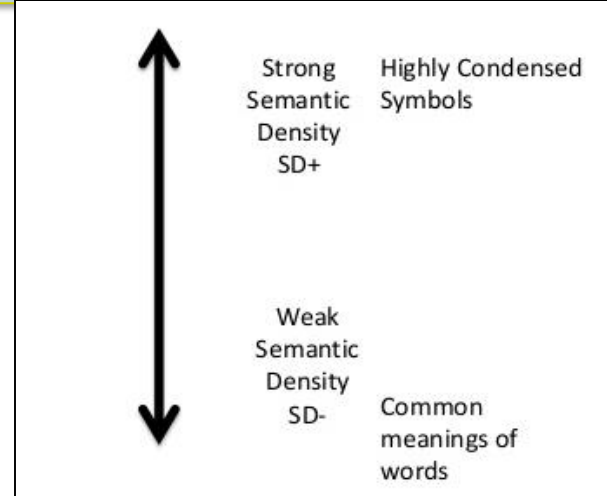
# Theoretical and Analytical Framework

- Karl Maton's dimension of semantic waves was used as a framework for this study.
- Semantic waves is part of Karl Maton's Legitimation Code Theory (LCT) used for analysing underlying knowledge practices. (Maton, 2013).
- Semantic Waves distinguishes between two aspects: Semantic Gravity (SG) and Semantic Density (SD)

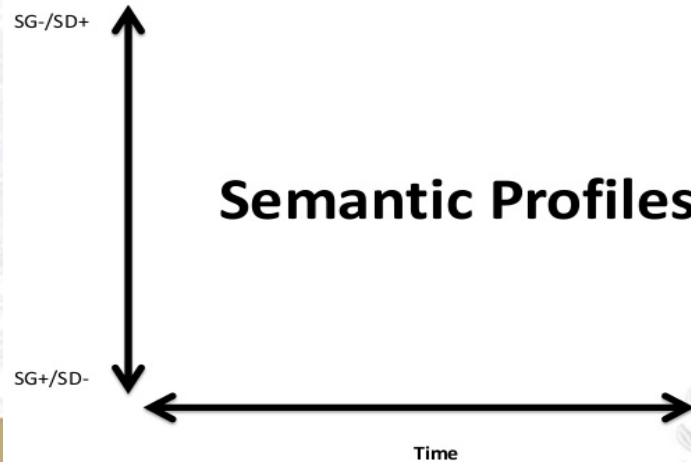
Semantic Gravity (SG): Refers to how much meaning is related to the context.



Semantic Density (SD): Refers to how highly condensed a concept meaning is.



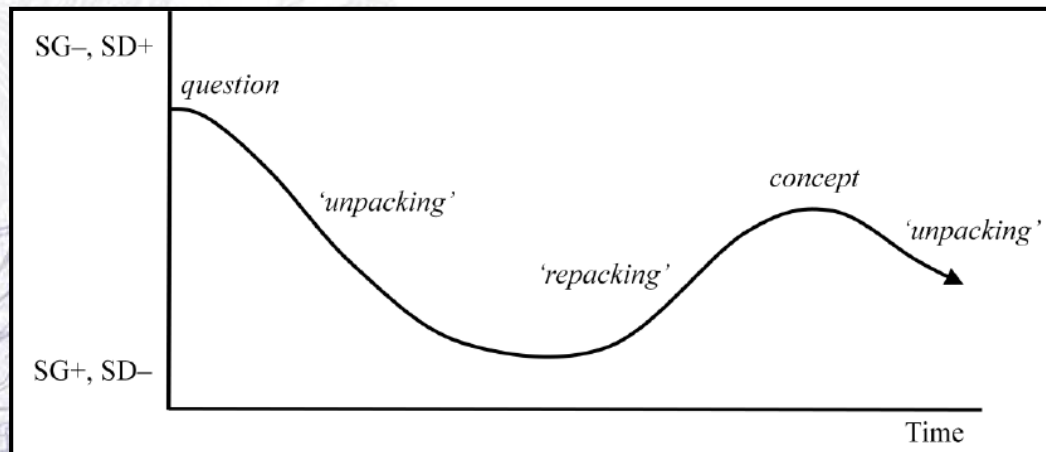
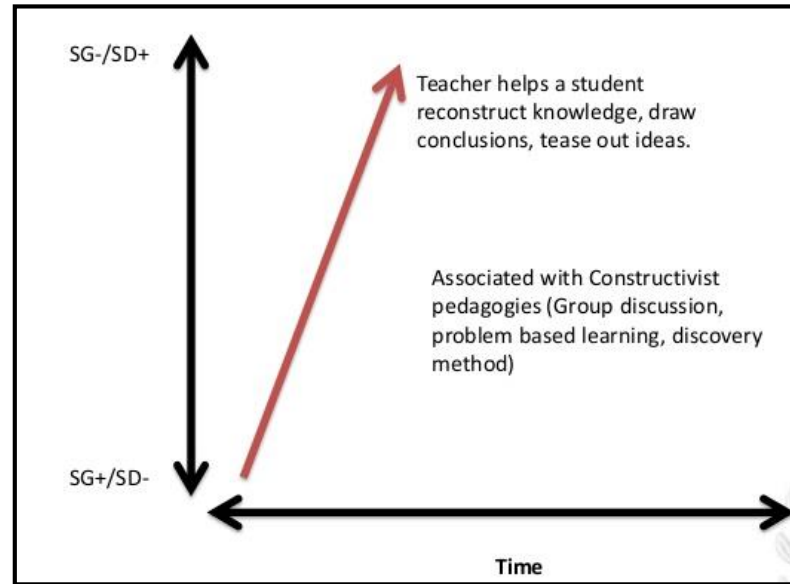
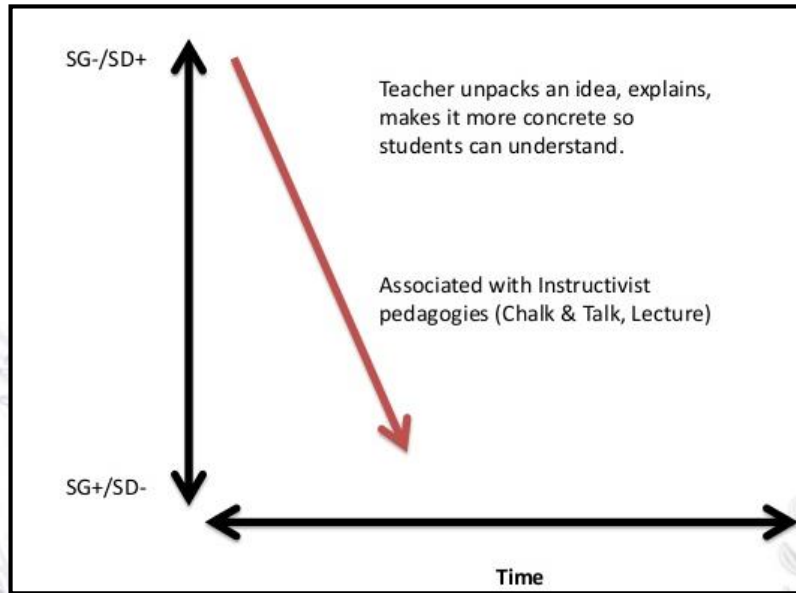
Semantic Profiles created from SG & SD can be used to analyse transfer of knowledge in the classroom



# Making Semantic Waves

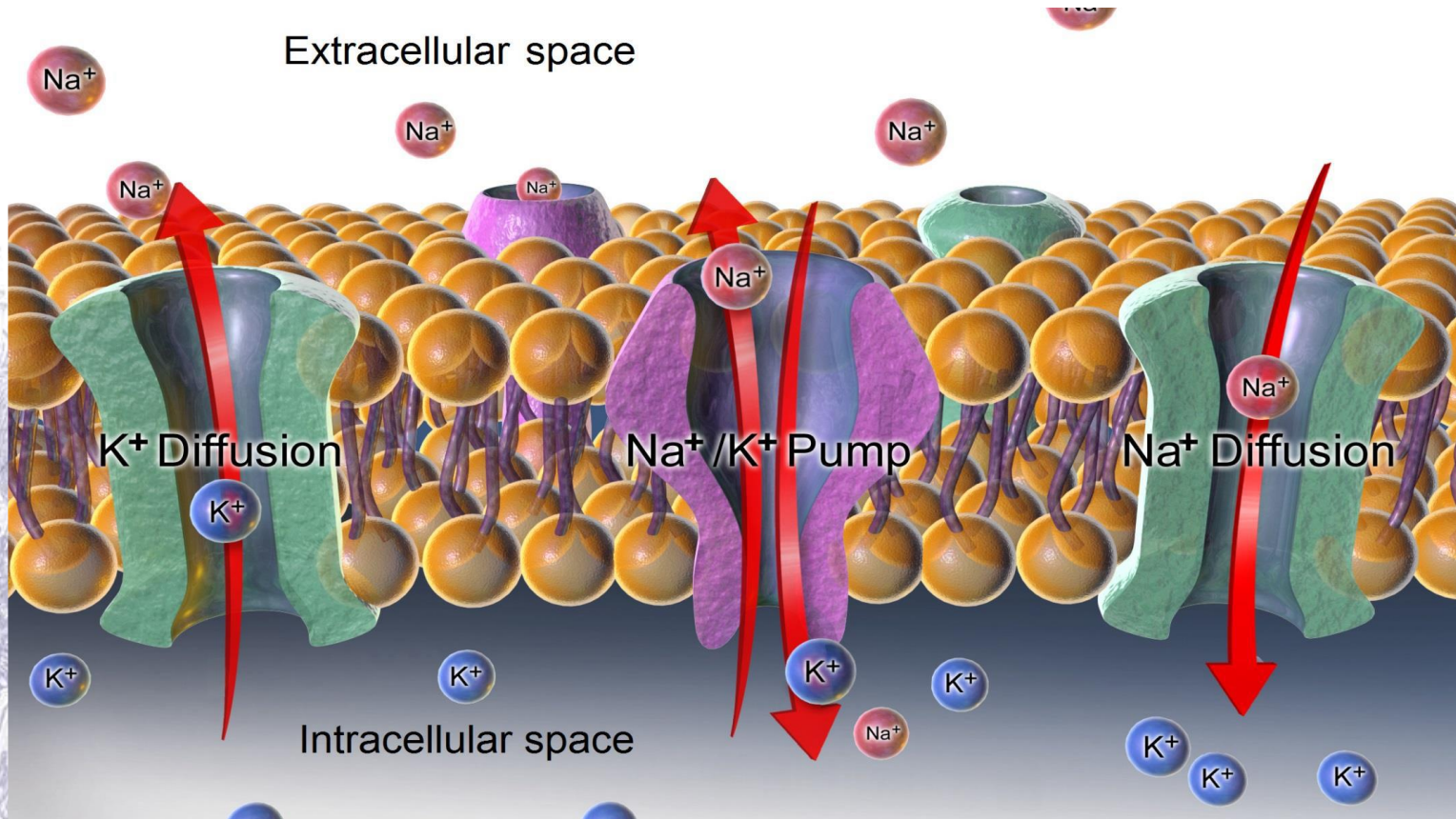


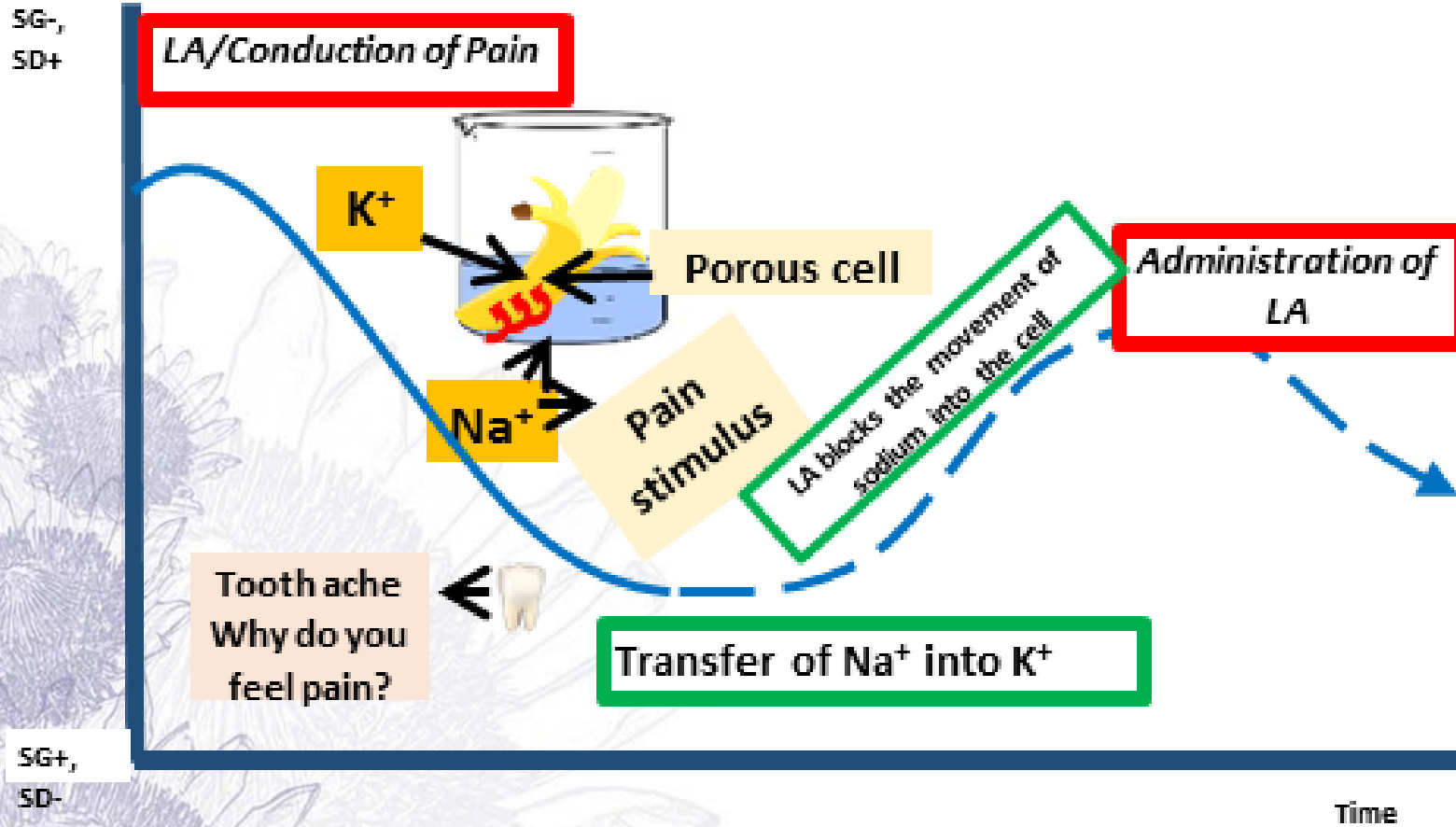
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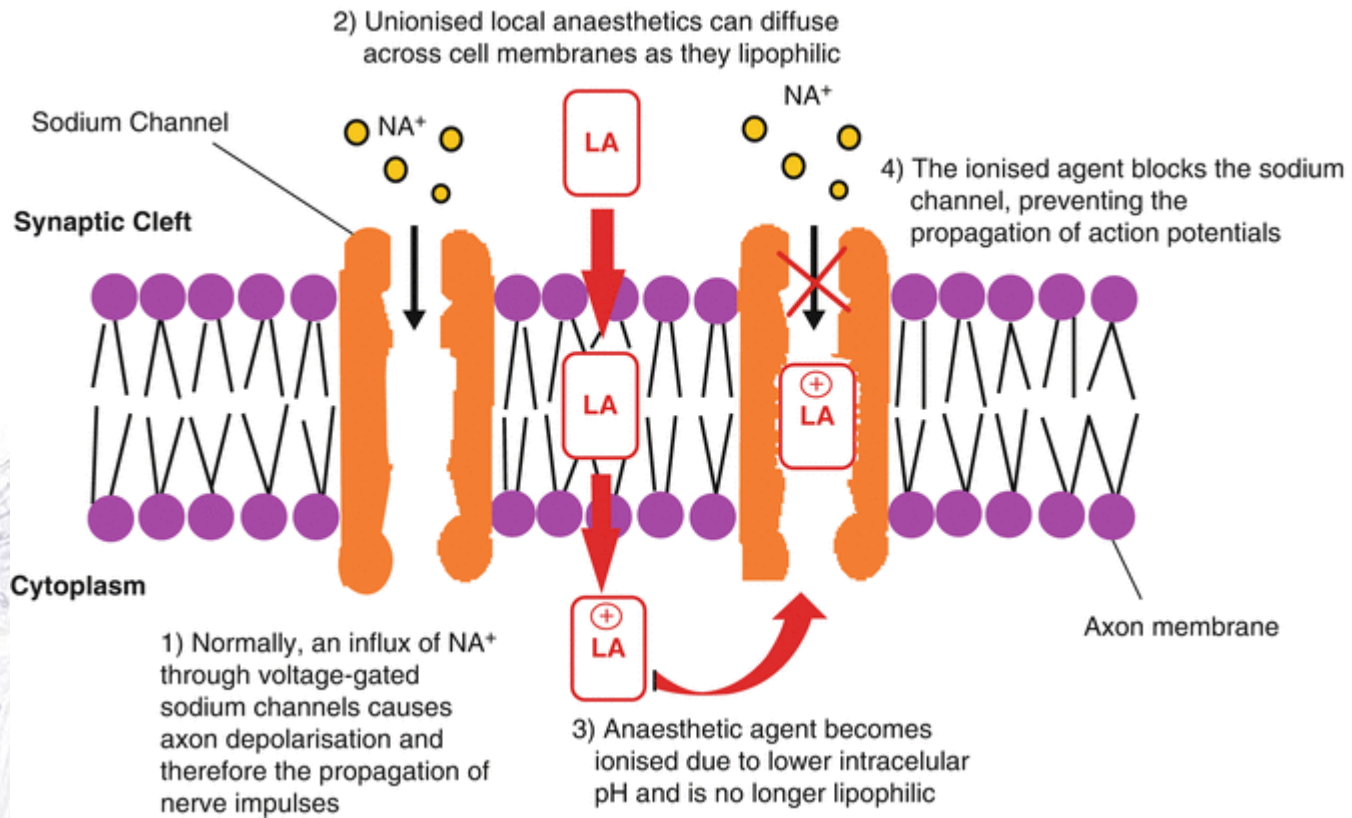


# The Tutorial Lesson

- **Topic:** Impulse Conduction
- **Aim of Topic:** Conduction of impulses and perception of pain (toothache)
- **Learning outcome:** Effects of LA
- **Challenges:** Understanding of  $\text{Na}^+\text{K}^+$  pump (transmission of impulses)









# Findings

Tutors used the following pedagogical strategies to bring about understanding of difficult concepts?

- Active learning
- Student to student engagement
- Multiple learning styles of students

As they went down the semantic wave: SG+ & SD-

# Comments by Students in the tutorials



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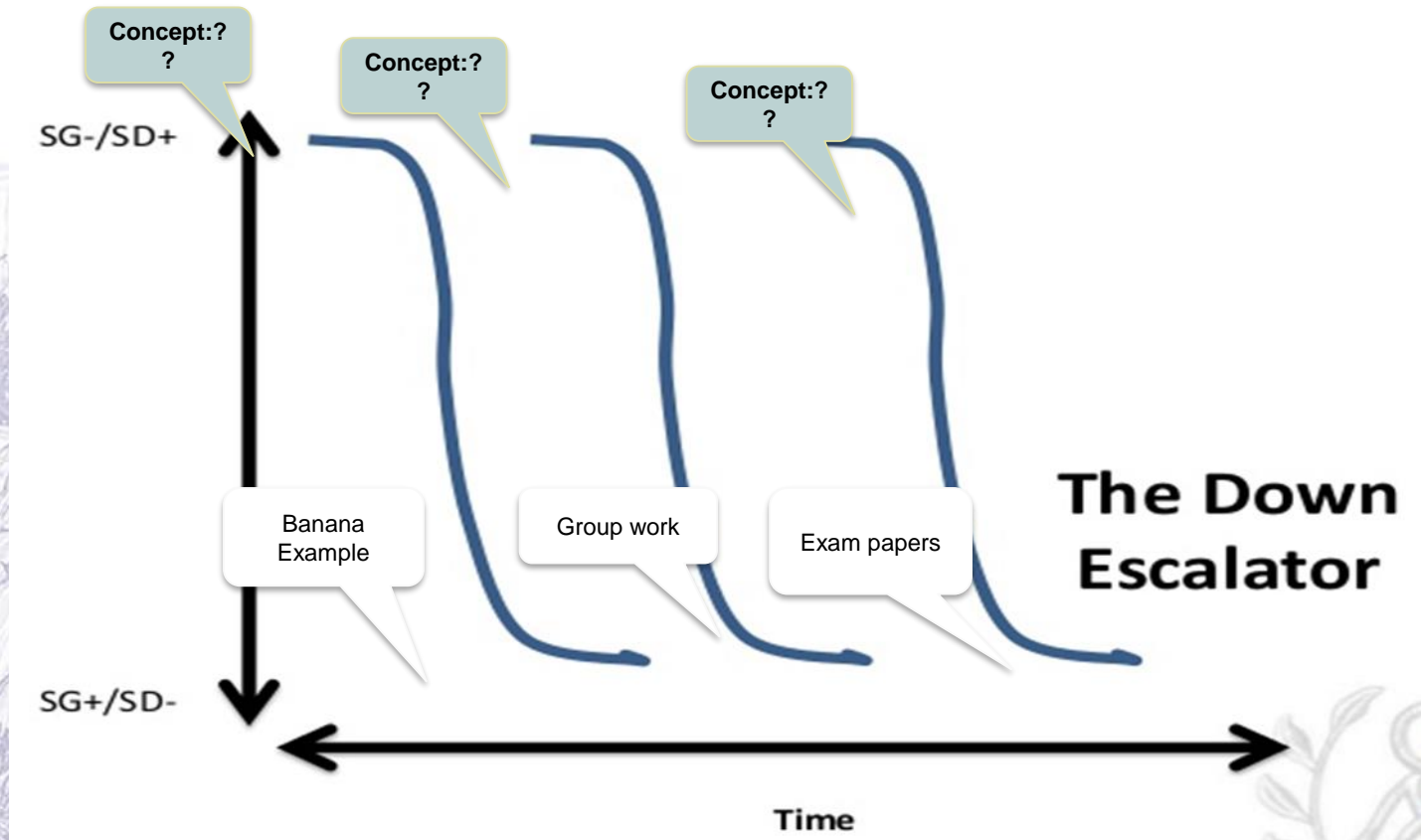
*We all struggle with nerve conduction, but the illustration of banana peel made it simple, we gained better understanding”*

*We were having difficulties how the Na<sup>+</sup> K<sup>+</sup> mechanism works. The tutor wanted to bring the information to our level so that we can actually understand, that helpful...*





# Discussions & Findings



# Findings & Discussion

- Tutors broke down key concepts to connect with everyday realities.
- The tutors used group work so that students could learn from each other.
- Tutors worked with past year exam papers.
- Tutors were able to move down the wave unpacking difficult concepts.
- Tutor were unable to go back up and repack to the academic once students understood the concept.
- **Tutors were unable to close the gap between classroom concepts and applying the knowledge during chair-side assistance**

# Conclusion



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- Tutorials helped bring about a space for students to engage with difficult concepts
- Students marks improved.
- Tutors were helpful in breaking down difficult concepts.
- However, tutors did not have the skills to move knowledge and meaning-making up the semantic wave to cumulative knowledge-building.
- The tutors were unable to engage students in critical thinking and reconnecting with abstract concepts.

# Way Forward

- The outcome from this study is valuable as the findings have resulted in the restructuring of the institutional tutor-training workshop, to include semantic-waves as a pedagogical model to improve student learning.
- This model will explicitly raise tutors' awareness about the importance of the interplay between knowledge structures, and the value of unpacking and repacking conceptual terms to bring about effective and situated learning.
- Training provided to BDS lecturers to use strategy in teaching



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Thank you!

