

# How WhatsApp makes Educational Data Mining difficult in West African universities

Bassole Romaric | Frédéric T. Ouedraogo | Laurence CAPUS

Norbert ZONGO University | University Laval



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# CONTEXT

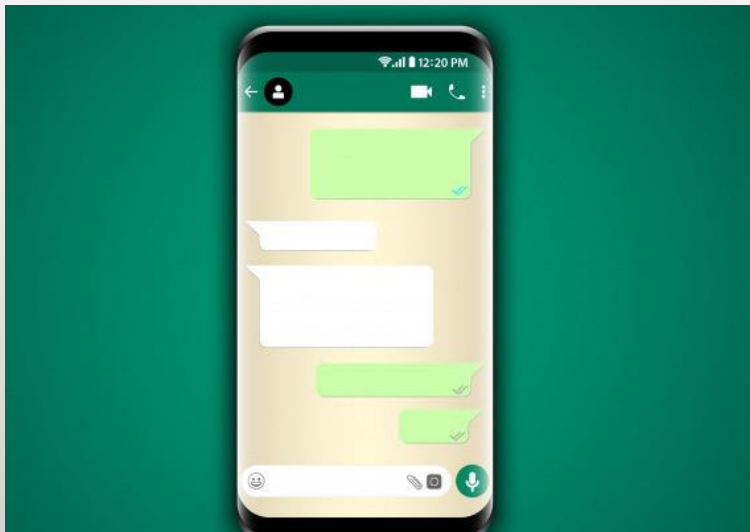
Many universities in African countries have adopted Moodle as a learning management system to offer online courses or to support traditional courses.



The success of social networks in general among young people who adopted them as their favourite communication tools has raised a great interest among educational experts M. Bousso, L. Capus, T.F. Ouédraogo (2020)

# CONTEXT

interactions between teachers and students around learning activities occur on other media such as WhatsApp or Facebook



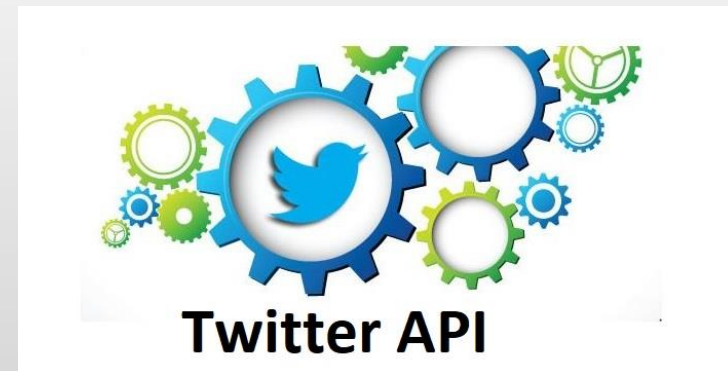
# CONTEXT



Facebook and Twitter have implemented Application Programming Interfaces (APIs) that provide many services such as obtaining user data from pages and groups.



WhatsApp does not have such an API. For example, there is no service to browse or search for a group on WhatsApp, let alone retrieve data.



# CONTEXT

Dedicated e-learning platforms are not sufficiently powered by student learning activities, so conducting MDE research seems to be more complicated in this context.



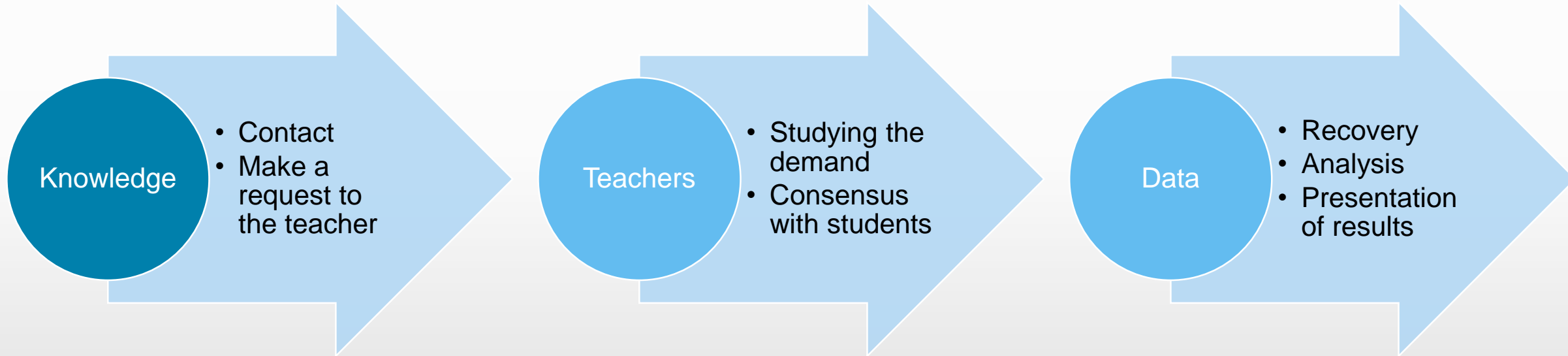
# DATA OVERVIEW WHATSAPP

WhatsApp groups are explicitly created by students and teachers.



# OVERVIEW OF WHATSAPP DATA

## Data recovery process





# DATA OVERVIEW WHATSAPP

We collected data from five groups: each group contains interactions between group members on course content and exercises, shared as files in the groups.

< date> - member\_id>: text  
written by the member>.

```
4/7/20, 8:11 PM - [REDACTED]: Merci monsieur
4/7/20, 8:19 PM - [REDACTED]: Également dans le PowerPoint dans un des exemples ils utilise un type currency. Je me demande de quel type il s'agit
4/7/20, 8:19 PM - [REDACTED]: IMG-20200407-WA0030.jpg (file attached)
4/7/20, 8:26 PM - [REDACTED]: Très bon exemple. Dans ce cas nous savons que nous allons utiliser un intégrer ou des décimaux pour gérer cette table. Mais
4/7/20, 8:27 PM - [REDACTED]: Ah ok je vois maintenant merci
4/7/20, 9:16 PM - [REDACTED]: Je parle de la question 1 de l'exercice 1.
4/7/20, 9:17 PM - [REDACTED]: On te demande de faire un diagramme ?
4/7/20, 9:33 PM - [REDACTED]: Mr c'était ma question aussi. On a dit de nommé les différents points. Mais je ne sais pas si on représenté avant de nommé.
4/7/20, 9:43 PM - [REDACTED]: Dessinez
4/7/20, 9:49 PM - [REDACTED]: bonsoir monsieur concernant les reponses on peut cree une nouvelle page pour repondre ?
4/7/20, 9:51 PM - [REDACTED]: Vous faites comme vous voulez. Tant que j'ai mes réponses et que j'arrive a comprendre
4/7/20, 9:52 PM - [REDACTED]: ok merci monsieur
4/7/20, 10:07 PM - [REDACTED]: moi ma preoccupation xai esk apres on aura a refaires ces modules pour questions dapprofondissements??
4/7/20, 10:08 PM - [REDACTED]: Vous reutiliserez ces notions pour le projet
4/7/20, 10:10 PM - [REDACTED]: okok mais vous aller repasser sur les notions clees??? parce il bien vrai k nous avons reçu des cours pour bosser .... mais j p
4/7/20, 10:12 PM - [REDACTED]: Ce n'est pas prévu pour le moment. Un cours en présentiel sur ce module
4/7/20, 10:13 PM - [REDACTED]: aaahh monsieur mais xai far deih ...
4/8/20, 11:43 PM - [REDACTED]: IMG-20200409-WA0001.jpg (file attached)
merci voici la capture decran
4/13/20, 2:32 AM - [REDACTED]: Séance mardi 14 avril 14h-16h
4/13/20, 2:46 AM - [REDACTED]: Okay!
4/13/20, 10:59 PM - [REDACTED]: okay
```

# DATA OVERVIEW WHATSAPP

The data processing was done with the Python language. We performed an exploratory analysis of the data to show that the data makes sense.

Student 1	Student 2	Student 3	Student 4
Merci	Mr	merci	diagramme
Lexercice	compris	être	lisible
Sil	Ok	exprime	choses
Module	Être	explications	chose
Question	excuse	explication	textuelle



# DATA OVERVIEW WHATSAPP

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We have presented some practical cases of using this data in the context of educational learning. The analysis of these data can be used to:

- Measure students' experience and overall satisfaction with learning.
- Predict future learning behaviour of students;
- Make recommendations to teachers.

# DISCUSSION

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- Many department heads have explicitly recommended the use of the WhatsApp group, among others, to continue courses.
- Huge amounts of data are thus created by this messaging platform without any persistent storage system.
- Data from WhatsApp groups can be made available on a website.
- But data containing personal data be rendered anonymous and users must consent to their sharing, before they are collected

# DISCUSSION

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- Moodle data is fully accessible to users and its collection can be completely controlled.
- The solution would be to develop an identical free service, but this raises several challenges

# DISCUSSION

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- This research could lead to the examination of administrative, legal and ethical issues and thus arrive at an African regulation of its own.

**THANK YOU  
FOR YOUR  
ATTENTION**

