

Use of a 3D printing project to develop and expedite student experience of public outreach / engagement to enhance societal trust in pharmacology



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Background context

- The University of Aberdeen pharmacology curriculum was compared to the BPS core curriculum
- This helped identify limitations in student opportunities to develop skills in **communicating science to the public**
- Clearly such skills are required to:
 - develop public understanding of the role pharmacologists play
 - enhance public trust in pharmacology and drug discovery/development
 - raise awareness of the discipline and delineate it from pharmacy

Aim

- To develop an engaging final year project to enhance understanding of the challenges of public engagement
- To enhance student public engagement skills
- To create a bank of public engagement resources to enthuse the next generation of pharmacologists

The project

- Small groups research a known drug target
- Research focussed on:
 - 3D molecular structure
 - drugs that influence the target
 - mechanisms of action
 - structure activity relationships centred around PK and PD
- Having chosen and researched a target students must:
 - prepare structural data for 3D printing
 - 3D print molecular target
 - complete a variety of individual and group assessments
- Assessments:
 - public information sheet about target and its importance
 - public information video about how the target can be pharmacologically manipulated
 - scientifically pitched new synthetic drug design

1. Public information sheet:

Explanation of the choice of molecular target:

- Individual piece of work
- Why important?
- What drugs interact?
- Effect of drug interactions?
- Pitched for public information
- Students have freedom of design

2. Public information video:

Public information / education video:

- Group exercise
- Must use 3D models
- Pitched to public audience
- 4 min maximum
- Staff and peer marked
- For engagement and education

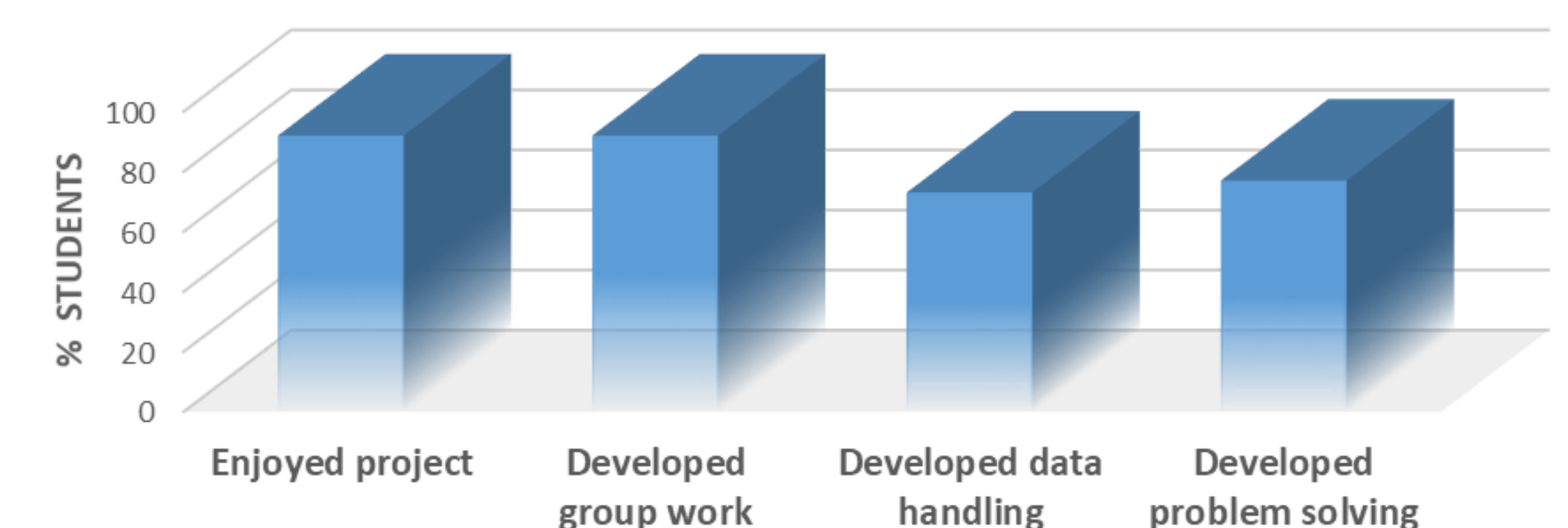
3. New drug design:

Design of new synthetic drug for target:

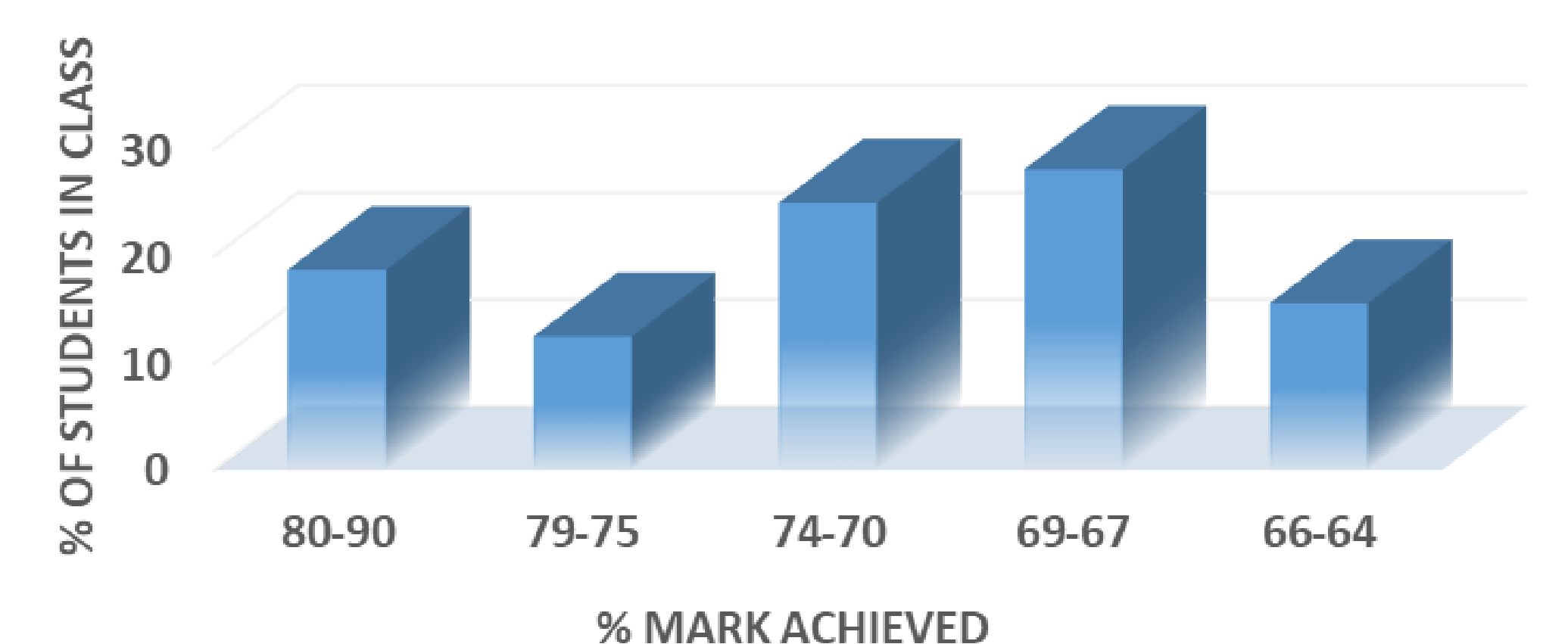
- Group design
- Use of 3D molecular software
- Annotated image and narrative explaining PK and PD profile

Evaluation

% OF CLASS RATING 4 OR 5



GRADE DISTRIBUTION



- “enjoyed combination of group and individual exercises, and the variety of assessments”
- “fun and informative”
- “made me think about how to approach explaining complex concepts to the public”
- “unique and enjoyable experience”

Outcomes

- Development of 3D understanding, drug design and molecular modelling
- Variety of assessments involving different media assesses variety of skills
- Combination of group and individual tasks
- Focus on public engagement and produces materials for Outreach
- Videos, leaflets and models used for engagement at:
 - University open days
 - Nursery, School and College visits
 - Public open door days