



Biotechnology education through drama

UNIT 19

European Initiative for Biotechnology Education

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Het Europees Initiatief voor Biotechnologische Educatie (EIBE) stelt zich tot doel vakkennis te verspreiden, inzicht en begrip te vergroten en het maatschappelijk debat te bevorderen door middel van verbeterd biotechnologisch onderwijs in scholen in de Europese Unie (EU).

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MATERIALS

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Acknowledgements

EIBE is grateful to the following people for their help in the production of this Unit:

- all the communication students in Diemen who participated in the drama project and made it into such an event in the theatre.

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About this Unit



These materials have been devised by practising teachers and educationalists from several European countries, brought together with financial support and encouragement from DGXII of the European Commission, under the auspices of EIBE, the European Initiative for Biotechnology Education.

The EIBE materials have been extensively tested in workshops involving teachers from across Europe.

The views expressed in this Unit and the activities suggested herein are those of the authors and not of the European Commission.

Particular attention should be paid to the general safety guidelines given in the introduction to this Unit, and to the specific safety guidelines throughout the text.

Safety

In all of the EIBE Units, we have tried to check that all recognised hazards have been identified and that suitable precautions are suggested.

Where possible, the proposed procedures are in accordance with commonly-adopted general risk assessments. If a special risk assessment may be necessary, this has been indicated.

However, users should be aware that errors and omissions can be made, and that different employers and educational authorities adopt different standards. Therefore, before doing any activity, users should always carry out their own risk assessment. In particular, any local rules issued by employers or educational authorities **MUST** be obeyed, whatever is suggested in the EIBE Unit.

Unless the context dictates otherwise, it is assumed that:

- practical work is carried out in a properly equipped and maintained science laboratory;
- any mains-operated equipment is properly maintained;
- care is taken with normal laboratory operations such as heating substances;
- good laboratory practice is observed when chemicals or living organisms are used;
- eye protection is worn whenever there is any recognised risk to the eyes;
- pupils and/or students are taught safe techniques for activities such as handling chemicals and microorganisms.

Why drama?



There are several meanings for the words drama, scene and theatre:

Drama in Japan, an aeroplane crashes, five hundred people died.

You turn everything into a drama

Shakespeare has written some dramas.

The drama of the holocaust in World War Two

There are also derivations from the word drama:

It was a very dramatic play

He is a dramatist

Word origins

There is a greek verb –dran- that means: doing, acting, acting with intention after a decision is made. In this sense there is a moment of choice after the action. The noun associated with –dran- is drama; meaning that which is being done; handled or acted.

Greek also has the word –agoo-that means: I precede or lead, I am doing, I fight in a game. In Latin we can find the word –agere- meaning: agitating, acting, doing, competing, striving, getting excited, incite, take action. This root can be found in several English words, for example:

he is an agitator, a troublemaker;

Piscator is involved in the Agit-Prop-theatre (Agitation propoganda);

Hamlet is the protagonist in Shakespeare's play.

From this verb –agere- also comes the past participle: actum, which can be found in several words that we use regularly:

actor, actress, acting;

a dramatic action;

in the third act the hero dies;

perform an act;

there is no action in that play.

For the word theatre we also have to go back to the Greeks. A – theatra- was a spectacle, that was being played in a – theatron-, a theatre. We still use this word in its original meaning, but it can also be found in many related words.

The terms drama, scene (stage) and theatre have similar origins and are used in the same sort of ways in contemporary language.

Theatre School, Drama School

Students put on a theatrical, they are acting, they dramatise.

A play is a drama.

The word drama encompasses a wide range of activities. A drama can:

- depict human nature through acting, i.e. acting in a significant context;
- create an event: players performing before an audience;
- be a representation of conflict between people, giving a distilled view of an action, while still having a flexibility of interpretation;
- it can explore different viewpoints in a tense situation, where participants have to place themselves in an identity that is not their own, and where the audience is drawn into the conflict. This acting is structured in space and time and demands by its nature an intellectual, physical and emotional involvement, but strives also for new insight into the subject explored.

If we look at these descriptions it is apparent that certain elements are essential to drama:

- acting;
- people and situations;
- tension and conflicts;
- portrayal and expression;
- space and time;
- actors and audience;
- a plan.



Educational drama



Aims

Intrinsic

These are mainly to do with personal development of the player, and only a little to do with the development of dramatic skills. The central aims are for the player to develop:

- self-confidence;
- emotional maturity;
- self awareness;
- awareness of others;
- ability to work as part of a group;
- communication skills.

The player is the central point, the work progresses from the player.

Extrinsic

These concentrate on the situation, the surroundings and real life of the player. The central aims are for the player to develop:

- insight into his/her situation and an understanding of how to change it;
- increased knowledge/understanding of the topic (language, history, literature, politics, social studies)

Artistic

The central aims are for the player to:

- gain an insight into and knowledge of the creative process in the theatre;
- develop creative and critical skills as both player and audience.

Objectives

Communication

Producing a play challenges all the participants to clarify their own attitudes and wishes. Participants will gain a better understanding of how to:

- understand his/her own and others feelings, individually and as part of a group;
- express these feelings in aspects of the play;
- explore and enlarge upon intuition;
- understand the balance between reality

What is dramatisation

To represent, give expression to, design or create something that can use players (and other props) to depict aspects of society (in the form of people and situations) to an audience.

With stage acting, as with spoken language, there is considerable intuitive knowledge of what to do to be understood. Dramatisation involves the portrayal of expression in words and gestures that is in everybody's nature. It can be compared with the pretend play of young children. Inside each of us lives an "actor". When you played mothers and fathers at playschool you did not think about acting, you just took up a role.

However, dramatisation involves more than just actions. It requires thought about the subject portrayed and an understanding of the dramatic process.

The process of making a drama will involve:

- a thorough knowledge of the subject matter;
- physical, emotional and intellectual involvement;
- increasing understanding of both the above through the creative process;
- insight into the dramatic process;
- realisation that knowledge of something can lead to knowledge about it which then leads to a new understanding.

and fiction;

Participation will also develop skills in creativity, imagination, concentration, self-confidence, responsibility and social interaction.

Social

Drama can challenge the player's values. It can help individuals to recognise and understand how they make choices.

Particularly, participants will develop:

- a wider outlook and awareness of different viewpoints;
- a sense of place within society;
- critical abilities in respect of individual and group values;
- an understanding of how drama can manipulate emotions;
- an understanding of how drama can highlight aspects of society.

Traditional

Drama gives players an opportunity to practice their inventive and creative skills. In addition participants will gain:

- knowledge of the basic process of play production;
- an insight into the use of drama to express ideas;
- a working knowledge of props such as puppets, masks, costumes, make-up, decor.



Evaluation

There are many different reasons for using drama in education, evaluation will depend these but questions that could be discussed are:

- What is the goal of this exercise, this scene?
- Is that goal realised/ achieved? If so, why? If not, why not?
- Was the exercise, the assignment, the scene of the play, fit to achieve the goals? How could it be improved?
- What did you learn? Why?
- What problems did you discover? As a player? As spectator?

Analysis can be carried out in four stages; observation, interpretation, speculation and experience.

Observation

This is concerned with what happened and what was its significance.

- What characters did we see? What were they doing? (Gestures, mimics, attitude, movement, where were they looking...).
- What are they saying? (Words; sentences; noises...).
- What was the setting of the play? What did the stage look like?
- How were characters portrayed? How did they relate to each other?
- When did the play take place? Years ago? The present? Over what period?
- Was the length of the play too short or too long?

Interpretation

Bart was continuously moving on his stool at the bar.

This would be an observation, interpretation would ask the questions:

- Why was he doing that?
- Why did he buy everybody drinks?
- Why is he a bodybuilder type?
- Why is he constantly looking at the waitress at the pool table?



Other interpretative questions might be:

- What made you see that it was around midnight?
- What is the real 'theme' of the play?
- What are the highlights of the play?
- What play structure did they use? And why?
- Which acting techniques were used?
- What are the relationships between the characters and how are you able to tell?

Speculation

Speculating about other situations, derived from the play, can be useful to deepen the understanding of a theme and to search for new ideas. For instance:

The context:

- What would have happened if the scenes were played at another place?
- What if it was not set at night but in the afternoon?

The parts:

- What would have happened if Bart and John were not related?
- If the waitress was not Bart cousin?
- What if they were less outspoken characters?

The problem:

- What other situations could we find to

demonstrate that theme?

- What else could be used? The same situation and people, but with another storyline?

Experience

Personal experiences of both the players and the spectators are valuable in terms of how they view the whole assignment, the effect that assignment has had on them individually and what they have learnt from it.

Some questions for the players:

- What was the overall impression of being a part of the play?
- What did you like about your role? What did you not like?
- Could you imagine yourself in the leading part?
- Were the other characters true to life?
- Was what you showed also interesting for the spectators? How can you know?
- Did you find it nice/boring/ exciting/ interesting?
- How did you work together?
- What did you think of the assignment?
- How did you handle it?
- For how long did you practise?
- Do you think that the assignment was carried out properly?
- What advice would you give a group starting at the beginning?
- What did you think of the use of scenery, props and space?

The direction



As coach you aim to create an unthreatening atmosphere:

- welcome every suggestion;
- allow the freedom to make suggestions without being judged (good, bad, wrong, funny..) or condemned as impractical (how are we going to do it? is that possible?);
- ensure nobody feels that they have failed;
- ensure that everybody has a chance to contribute;
- point out that all ideas will not lead to success, that some will fail is normal and necessary.

Remember:

- A short good show is better than a long bad one.
- In phases that appear to be stuck, go and do something else, make a move, go for a walk, play a game. Sometimes the players will solve the problems themselves.
- Always think and be positive, let the players know and tell them that with everybody's input it will work.
- Pat on the back and praise a lot.

Choosing a theme

Possible themes (just in case); teasing and being teased, wanting to belong, romance, love, sexuality, friendships, loneliness, conflicts with parents, taking responsibility, insecurity.

If possible the themes should be suggested by the students themselves. Ask open questions:

- What issues are important at the moment?
- What could be important to show to other people in a play?
- What kind of characters do you want to play?

If there are no suggestions or responses,



the questions can be less open:

- Do you fall in love?
- Do you have fights with your parents?
- Did you ever have a friendship that did not go so well?

If there is still no response, use personal experiences as an example, when you were fourteen and what you were doing. Ask the students about similar experiences.

The theme does not have to be about a single subject, but can be about several themes at the same time, e.g. friendship and love. But the maximum is three, otherwise it becomes cumbersome.

Brainstorming

- Once a theme/ subject is chosen, arrange a whole group brainstorming session where all ideas are noted on a large board. Nothing is rejected at this stage, all ideas are welcomed.
- From the list considered the most importance aspects of the subject? Circle these, don't delete or remove anything yet!
- Choose a title from the most importance items. This can always be changed, but it is important to have a title, it gives a direction.

Idea development

A small group are given the task of organising the results of the brainstorm phase and writing them down. This is about giving the subject more depth, grouping thoughts,

feelings, ideas and coming up with situations that can be explored in a next phase. Every idea is good and accepted.

The storyline

Ideas are selected that can be placed in one story. The following questions will need to be answered:

- Who are the characters? (Father, son, friend...)
- What is the theme?
- What is the location of the story? (Living-room, bedroom, hotel..)
- Why are they undertaking this? (historical, coincidence, theme)
- When is the play? (year 1800, at this moment, in the future)
- How does it progress? (in what form)

If there is a lack of ideas at this stage the coach will need to suggest some. Choices will need to be made about:

Situation: such as different people, not known to each other, in the same circumstances, experiencing the same event. (on the train, bus, plain crash).

Theme: the theme is the thread through the production, different parts may appear to have nothing to do with each other, but they will need some common theme: dancing, singing, sketches about sex.

Form: such as modern dance, opera, a storyteller.

There must then be a choice about who will work the ideas into a presentable form. This can be done in the group, but sometimes it is necessary to work in smaller groups (2/3 students) it depends on the choice of the story/thread. In this phase steering is important: decide the best way to shape the story, considering the theatrical effect.

Selection

Decisions must be made in this phase. What is, and what is not going to be used.

The definite script must be determined. The characters must be set. Everybody must be motivated to make the choices work.

The search for clothing, props, decor can start. Lighting and sound must be chosen.

Refinement

The play must be polished in every detail until it cannot be improved anymore. Besides the rehearsals the play must be walked through at least three times, not losing the context of the play.

The full dress rehearsal

This is the last phase before the final play. It is called a full dressed rehearsal because everything is played like it's for "real". The players are not allowed to stop and must go on even if mistakes are made.

Practical notes for the director



First of all you have to divide up the tasks, allocate responsibilities for the script, lights, sounds, sets, costumes and make-up.

For work with the cast:

Interpretation

The word is self-explanatory, each actor will make his/her own interpretation of their role. This may differ from what the writer originally intended. The following questions will need to be addressed by the actors:

Motivation

- Why are you going to work with this part? Why do you personally like this part?
- What must the audience know/ learn/ understand?

Subject

- What is the subject of the part in one word? (Desire, distance...etc.)

Theme

- Describe the theme of the part in one sentence.

Example:

If with the realisation of desire, reality is being ignored, fate is going to hit home.

Conflict

- Whom versus whom? What versus what? Whom versus what?
- What interests do the players have separately from each other?
- What interests do they have together?

Characterisation

- Develop your personal interpretation.

Style

- What style do you choose? Is it different from the writer's intention? Why do you use this style? (tragedy, comedy, to be absurd).

For work with the production team:

The Stage

Make a plan of the stage to show where everything must stand (see Figure 1, page 13).

Scene changes

The director devises the walking, standing and sitting positions for the set. A sketch should be made for every change (sometimes this does not work in the reality, be flexible). You can also work with the actors on stage and then make sketch notes. The sketches should be annotated with sections from the script (see Figure 2, page 13).

Set and costume design

Scenery

Sketches from the front of the stage should be made for all the scenes.

Costumes

Drawing/ pictures/ photographs or pieces of fabric and a description are needed for each costume.

Lighting

Plans should be made for the positions of the lights, what are the lighting needs for each scene? What filters are needed for the spots? In what part of the play will fade-in, fade-out, spots, darkness etc. be needed; this is also a part of the script.

Stage property (props)

List everything that is used during the play, scene by scene e.g. gun, umbrella etc.

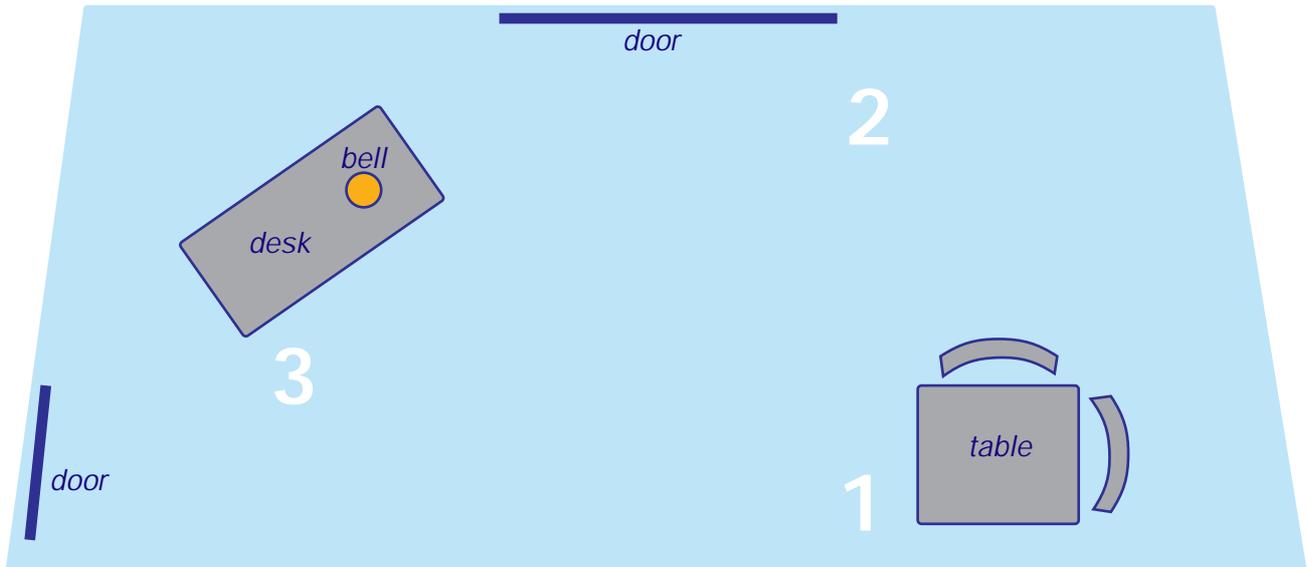
Make up

Create sketches of the make up for the actors. Give a description of the characteristics of the make up for the actors. What is the base/foundation of the make up, list sources of help.

Sound

Draw up a list of the special effects and music. Make notes of when and where in the script to use fade in, fade out and other effects.

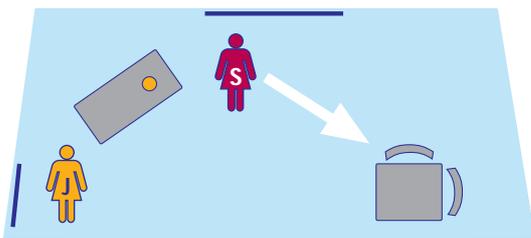
Figure 1. Example of a stage plan



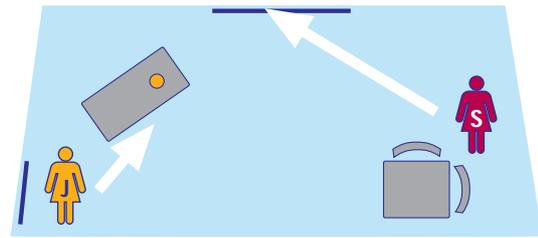
Start of scene 4

lighting notes: 1 - socket 12 spot
2 - socket 10 lights
3 - socket 11 spot

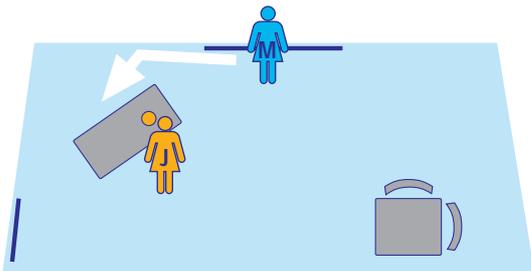
Figure 2. Example of a scene plan



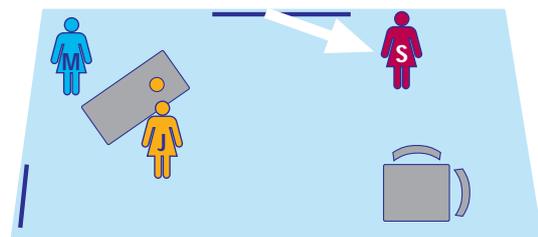
Servant walks to the table, looks...



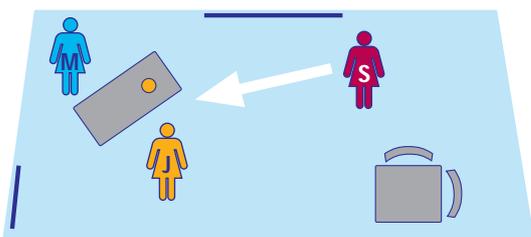
Jane rings the bell...



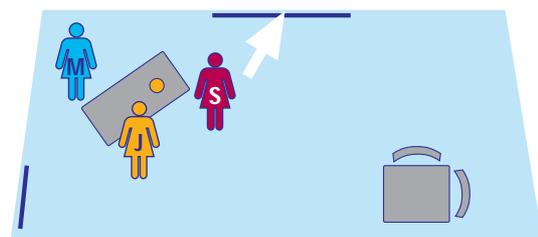
Martha is behind the counter.
Jane: Good afternoon, I'm here for the room.
Martha writes... to: I'm from Africa



Martha: I presume you have identification?



Jane: I have a passport, here it is.



Martha (to the servant): i did not call you.
The servant walks back

Production planning



Auditions

When and where are the auditions taking place? What can the aspirant players do to prepare themselves? How many players do you need? What are the selection criteria?

Rehearsals

Outline the rehearsal program. What pages of the script are you going to rehearse? Which parts need to be memorised? Role construction, division of tasks, role interviews, walking through the scenes, decisions of costumes, practice with make up, lights and sounds, etc. in what way are you going to show the scenes? What do you do with the behind the scene effects? (Story teller, tape recording)

Production schedule

A general time plan for all the production activities. When are the costumes and the stage to be ready? When are you going to practice the make up? When are you going to build the set?

Finance

A financial picture which outlines every cost for the production: stage, costumes, theatre, make up, publicity, tickets etc. Who will pay, can you look for sponsors?

Publicity

Arrange for the design, production and distribution of posters. Will there be a press release, what will it include?

Record book

Indispensable, for contact details and records of the whole production: the title and the writers, the names of all the players, the assistants, lights, sounds, costumes, make up, stage and a short summary of the theme.

A suggested sequence

This describes one method of going about a production which may serve as a guide, but there are many ways of doing it and it is best to find your own style.

1. Read through by as many different people as possible.
2. Select the parts you want to use.
3. Allocate the roles.
4. Read through the in the chosen roles.
5. Talk about the interpretation (see the practical notes).
6. Talk about the different characters (see the practical notes).
7. Play through with the script.
8. Write role biographies.
9. Select outfits and objects that supplement the roles.
10. Memorise the script.
11. Role interviews, role forming, (continue doing these as needed)
12. Decide upon the stage
13. For each scene: walk through, practise small parts, walk through again.
14. Develop strategies to work on problems:
 - write down what is difficult and what works well;
 - play the parts at “ top speed”, no breaks and silences, this may help to identify problems;
 - sing the scene as if it was an opera, it does not matter if is bad singing;
 - play the scenes in a different style: a comedy as a drama, a tragedy as a comedy.
15. Pep talk.



An example of a student production about genetic modification



The making of the cabaret

In September 1999 nine non-science students from the School of Communication Studies at Holland University started -after suggestions from EIBE -a project to produce a drama about biotechnology. They gave performances in an Amsterdam theatre and in the auditorium of the university in April and May 2000.

The aim of the project was to make a contribution to closing the communication gap between science and society. Non-science communication students were asked to write a drama about biotechnology as they perceived it, in order to communicate to the general public via this medium.

The students based their texts upon own literature research. The final goal was to perform the play as professionally as possible in an Amsterdam theatre. They worked on it over eight months, about one day per week.

The students organised themselves in four business units, tutored by a lecturer of the School, according to the curriculum demands in the second year of the School of Communication Studies. One unit of three students did the research, wrote the texts and did the performance under the direction of the drama teacher of the School.

Another unit (two students) did the organisation and obtained sponsor money.

The third unit (two students) made a digital video recording of the making of the drama and of the final performance.

The fourth unit (two students) developed and produced posters and flyers for advertising and composed and produced the

programme booklet including a pre- and post-test on attitudes of the audience towards biotechnological issues addressed in the drama.

The whole project was supported by the School of Communication Studies by 0.3 FTE extra teacher time mainly for the direction of the play. The Dutch Union of Biotechnology subsidised the exploitation and material costs and EIBE gave support for the evaluation.

The resources used in the preparative research were EIBE units, articles in recent newspapers, didactical studies on the perceptions of (biotechnological) genetics and video registrations of documentary programs on TV.

The production of the texts resulted in fourteen cabaret scenes about philosophical, societal and ethical issues in biotechnology. and treated subjects like xenotransplantation on movie stars, the evolution of life, advertising topics, the genetic passport and cloning of humans. The cabaret was approximately one hour long and the language was Dutch.

About two hundred non-science spectators visited the cabaret titled 'Gewoon doorgaan zo?' (Just going on like this?), most of them during the two performances in the Polanen Theatre in Amsterdam. The reactions of the public to the production were very positive both on the content and the professional performance.

Evaluation

Evaluation of the process of writing and performing the drama took place with the students, the director of the play, the tutor of the students (FB) and an EIBE representative (JL) who functioned as evaluator during the session. The language during the evaluation was English.

The evaluation was tape-recorded. The partly summarised transcript of this evaluation is given below. Quotations of the evaluator are in bold blue italic, other quotations in plain italic. Summaries of quotations are in standard text.

The aim of the writers was to make a creative play to make biotechnology accessible to people. The type of play was very open, up to the writers. Was the main aim to help people to know more?

Student *No, to make them think and want to find out more.*

Director *To find out what was their point of view.*

Tutor *To enhance critical thinking in the students engaged in the project as well as in the audience.*

What was the nature of the background knowledge at the start?

Student *No knowledge, not really. They did not know very much about the subject and they had probably some prejudices at the start.*

Director *I advertised for participants.*

Tutor *I told them what it would be about and that was the basis of their initial interest.*

Have your views changed during the play?

Student *We know more but I do not know if it changed my view.*

What difference does knowing more make?

Student *Well, there are more situations to think about, not just one or two things as at first. Its all biotechnology, you can't be for or against it.*

You can't but why can't you?

Director *In the beginning I was against biotechnology. When I realised the potential benefit in treating human illness then I thought: I would want to be treated maybe.*

Student *In the beginning I was afraid of it. Now I know more and know some of the possibilities are good so I concentrate on the*

good things.

Student *More information means less fear.*

Student *There is also a social context. We have talked about the ethical issues a lot but there is no feedback of other people. That is the strange thing. And without feedback it is hard to create opinions.*

So who you expect to get ethical feedback from?

Student *That's the reason why it is so important, to create a big discussion to get more feedback.*

You mean there is no discussion?

Student *Not really, no.*

Director *You get some messages from the media but nobody talks about it.*

Tutor *I interviewed a number of people in the audience before the cabaret and only one person could say something about biotechnology. This is similar to the findings of a European report.*

So that is what you mean by feedback? There is no one you can discuss with?

Student *Yes, it makes hard to create an opinion.*

So that makes it hard to find an opinion?

Student *Yes and I wasn't aware of that.*

But you were able to make the discussion in your own group? [Asked the tutor]

Student *Well I tried but there are lot of different subjects. Biotechnology is not a small thing.*

So were there subjects you left out?

Student *Yes, food.*

Director *Food is nearly not mentioned. If we do it again we should have to do more about food.*

Student *I was thinking about it when I was doing the rap. I thought it had to be mentioned. Well we did include some, we planned to have something about animals, plants and humans but it is easier to make fun about more extreme examples.*

Director *There is no drama in it.*

So yes, people are interested in plants so Christa [the director] is probably right, there won't be much drama in it.

Student *But people were already scared when we talked about something in the food but we eat the food and it becomes part of our body. So we should be worried if it is the same as putting the heart of a pig in your body.*

Director *Well, you eat pigs, why shouldn't you put a heart of a pig in your body? And the food*

and meat is totally manipulated now anyway. For me it was an eye opener. I realise: you milk cows already and that is manipulation. I hadn't realised how much we already manipulate our food.

So you are right. It is really a big subject. So how did you choose what you presented? Was it just: oh this is a good idea or did you have a clear plan?

Student *Well at the end it came together but mostly there was no plan. We just started to write, we talked about ideas, then we had a complete scene and then we put the whole thing together and we had a total view. Then we had to make some changes.*

At that point you realised you had no genetically modified food?

Student *Yes, I think so. And we did not think about it.*

Student *Well it wasn't my approach to take food or anything. I just took what I thought to be funny, what affected me, what I had some connection with. I can't write out everything. We used a documentary of Wim Kayzer as a starting point. He talked about a lot of different things. Some of them seem to be quite racist or eugenic. But when I tried to find out more about that through searching with Altavista on internet I could not find anything. Also it is strange: he raised a whole lot of things: he talked about maize and super maize and food supplements and things but I was fixed on something else, I did not really think about it. If we are thinking of food now think we could do some funny jokes with it. For example tomatoes written ALF on them.*

Those of you in the organisation, did the performance change your views biotechnology?

Student *Yes, in the beginning I had no clue about biotechnology. Now I know more about something for example treatment of diseases. Now I am more positive.*

So you are more positive even though some things they put into the drama were quite scary?

Student *Yes, you think about it but diseases are very specific to you.*

The rest of the group agreed.

So how did you decide what stayed in and what went out?

There was some disagreement here between the students and the director

Director *It was what would be right for the audience. Before it was discussed what we should skip, what we should change and what would give a better performance. I didn't choose anything, I advised and you chose. You did it yourself.*

To go back to the organisers, you started not knowing anything about biotechnology. Is that right?

Student *Yes. In the beginning I wasn't even interested. I just wanted have a good and nice play. When I saw what they wrote I thought: ah, that is interesting.*

So was it that you did not know anything about biotechnology or was it you just weren't interested?

Student *Well, I hadn't really thought about it.*

In the last two or three years there has been lots of information in the media about biotechnology, some of it quite unbelievable, but when I talk to young people they not really know much about it.

Student *Most things in the media are just the fun things like orange tomatoes.*

Student *Most things you read are in the science piece of the paper and a lot of people do not read that.*

Student *There is so much information about lots of different subjects. It's very hard to have a view of it.*

Student *The terms are very difficult. They scare people, you think: forget it.*

So it is a communication problem then?

Student *Yes.*

So now you know more would you be tempted to read more or look at more programs?

Student *Yes*

Student *It is strange, now we know more, now we are thinking about it, there is a lot of information you can find on the internet. But if you are not looking or you don't know about it, you don't see it. You need a flyer or a brochure to tell you what's it about. I think we should have had something like that with the play. Some information people could take away and dispatch at home.*

So where should the information be put if you ought to see it?

Students *Posters, preferably with a joke; TV programs. The information has to be accessible.*

So what would make it more accessible?

Student *Well, at the moment there's too many difficult terms and it's too boring when presented on TV.*

Would scenes like yours from the play make it more accessible and appealing, for example on TV?

Student *Well it's closer to normal people as discussions between professors. Especially it would be better for young people. It should be given by young people.*

Student *There is some good information on the net in NIABA (the Duth Biotechnological Workers Society), their site for children is funny, with games and all sorts of things. But you don't see that anywhere else. We need something like that in brochures.*

Student *Journalists don't know a lot about it. There lots on the internet but it is never in the newspaper and when it is it's just a little bit and they never give an opinion.*

Student *The topics need to be related to you and yourself and your own life. For example the simple man in the play. I don't care about manipulation of food. What can I do with it?*

If you would do it again, is there anything that you would do differently?

Student *Well, I am very proud of what we got!*

Student *Well, I would like a complete story*

Student *The problem with that is you can only cover a few subjects.*

They all agreed they made it difficult for themselves because they wanted to create a coherence between the scenes.

Student *It's important it should be funny but it also make people think: they laughed but when they thought about it they were sad.*

Which might become reality and which was just used to make the point?

Student *Well, insurance was real! Liposome-gnomes were not.*

Director *They can bring small things into your body like little cameras.*

Student *But things now were not imaginable a hundred years ago so we needed to have fantasy. We don't know what is possible.*

You found out when you were on the net there were lots of organisations giving information. There is lot of information about but you are not getting it.

Student *The reasons for that were that people don't talk about it, they are not involved in it. Anything is possible now but we have no influence so we are scared and maybe that prevents people from talking about it because they can't do anything about it.*

Student *It's not real for people.*

So, how do you know what's real? Or what's possible?

Student *We were talking about cloning, you just take a head off and put it on another body and I can't understand that, I can't ... see it. It is like a fantasy to me.*

[She seemed to think it was real.]

Students *We don't know how it works and that makes us scared. We don't have enough information. We do something with nature that is not natural and it is not always done for good purposes. Companies are concerned about profit and they don't worry about the risks. That's scaring. They kept something quiet for a long time. When we started to look for information we noticed that a lot of things were happening for ten years or more. And we didn't know about it! Then it was important for companies to keep quiet, now they want to tell us about it.*