

APPENDIX 2: STUDENTS' ANSWERS TO THE INTERVIEWS ABOUT THE FIVE NEW TECHNOLOGIES

1. CAVE: The opinion of Belgian students.

- What is your general feeling about this CAVE environment?

Alexandre¹: There is no possibility to move properly.

In classical dance there are a lot of different movements which can be performed at the same time and I do not think the machine is able to correct everything.

Moreover, for a dancer it is indeed important to see the teacher perform, but it is also very important to be able to bring something personal to the movement, something we cannot do with CAVE because it will be seen as a mistake.

Dance is very technical, but this CAVE is too technical and does not give the student the opportunity to create or to bring his/her personality to the movement.

Alysson: I think it is very strict. The avatar teacher is showing us something and you have to do exactly as the teacher did, but the fact is that everyone is different and has a different body. Normally you are allowed some freedom when you dance in the studio but here there is no freedom at all.

If I had to train in the CAVE, I would not be able to find myself in my movements.

Cynthia: I think it is good for younger kids because ballet is very strict, and you have to perform the new movements you learn correctly. But when you are older, you have to become your own. If you do exactly the same as the teacher, every dancer will dance the same way. So, you cannot stay there, you need to get out in the real world and find yourself.

- In your opinion, is this CAVE appropriate for dance students?

Alexandre: I do not like the idea to work alone. And I really prefer to work "live" with other students.

Even using ZOOM makes it better because at least we see "real" people working at the same time as we do.

I also think I would have great difficulties to stay focused because I have to do all the job, I cannot rely on my friends.

I would not have the feeling to train or to perform with someone.

Regarding the space, in today's life with the lockdown, that could work but I do not think I would have more place inside the CAVE than in my living room.

¹ The whole interview of Alexandre was held in French. The answers he gave me in French were translated into English by myself.

Alysson: I think it is a nice idea to be able to work on your own when you have some free time so, I would like to try it. But I would always prefer to work with real students and teachers.

Cynthia: Yes, but again only for younger ones. But even, I do not know if they would understand the feedback in form of skeleton because it is very technical. And moreover, it is giving feedback only for the technical part of a dance.

- What do you think about the feedback? (2 types of feedback: during the performance and after the performance/In colour)

Alexandre: Using colours is a good idea because it is easy to understand and fast to see. If I had to choose between these kinds of feedback, I would say I prefer the feedback during the performance but not in these circumstances.

I explain myself: In live, in a dance studio, I prefer the feedback during the performance but in Zoom, or if I was in this CAVE, I would prefer the feedback at the end, when I am done, to see in overview what was correct and what was bad.

If I were training in a CAVE, a feedback given during the performance would distract me because as a student, you do slight mistakes almost all the time, so I would receive feedback every 10 seconds and that would be very disturbing.

Alysson: Usually at school, teachers walk around us during our performance and give us real - time feedback, so I find it useful to have the opportunity to receive different kinds of feedback. When the teacher walks around, you will often not receive feedback because she/he was not looking at you properly but at everyone as a whole. I would really appreciate to receive feedback while performing, I think that could help me improve myself. However, if you keep watching the skeleton, that is not handy because you still have to continue dancing. That would be too disturbing. In regard to the colour, again I think this is very strict and I would prefer to still have the little freedom I have at school.

Cynthia: I think my favourite one is the feedback given during the performance because you can immediately change an error. I don't think the feedback given at the end is useful because you already had feedback during the performance. Moreover, when I dance, teachers say things during my performance about the technique and sometimes about the emotions at the end of my performance. But that [giving feedback on the emotions], CAVE cannot do it.

- According to you, is this feedback better than the one given by a teacher during the class?

Alexandre: No. A teacher's feedback (from a « real » person) is much better than pre-recorded and programmed feedback.

I prefer what is real. And if it is not possible, for example because of Covid-19, I would not like to receive feedback from the CAVE environment because it is as if I was with a robot.

Alysson: No. CAVE gives only feedback about the technique and your body. It means there is no feedback for everything around the musicality and our expressions.

Cynthia: No. Teachers have danced for years and they have experienced it a lot, they know solutions and they know how to help you. CAVE does not help you; it just tells you your mistakes. So, you don't have any help to improve yourself.

- Have you already been in a CAVE environment? If yes, for which occasion?

Alexandre: No

Alysson: No

Cynthia: No

- Would you like to train in a CAVE like this one? Why or why not?

Alexandre: No, I would not like it. According to me, nothing is better than the feedback of a "real" person. I just need a teacher, friends and a mirror to see myself training.

Alysson: I am curious so I would like to try it, but I would not appreciate to train there every day.

Cynthia: No. I like to be surrounded by other dancers. Being in the CAVE reminds me dancing in my hallway. I need a team spirit when I dance.

- Do you think that the CAVE environment is a good way to communicate? Is the communication between the virtual teacher and yourself a good one in this environment? Why/why not.

Alexandre: No, I think it is not a true way to communicate because you don't have a person in front of you but a robot.

According to me, CAVE will never work in dance classes because it will never be able to replace a real teacher.

If Covid-19 was hitting us again for a long time, I would maybe use it to train but otherwise never.

Alysson: It will always be nicer to have a real interaction with the teacher because it is a real connection, and you have the possibility to ask questions. According to me, the possibility to ask questions is very important and with CAVE it is not possible.

Cynthia: I do not think so because it is very straight to the point and thus it is not the best way of communicating.

- Do you have any comments to add?

Alexandre: No

Alysson: I really do not appreciate that it is so strict in terms of feedback.

Cynthia: I think that finally it is even not so good for younger students. The only way I think CAVE could be useful is that if you are an advanced dancer who did not train for some time and want to check if your movements are still correctly performed before going back to school. So, I would use it as a check-up but not for training.

2. VR: the opinion of Belgian students

- Have you ever used a VR? If so, was it in a dance context?

Alexandre: No.

Alysson: Yes, for Christmas last year. It was to play video games, but I have never used it for dancing.

Cynthia: Yes, but to play.

- What is your general feeling about this VR?

Alexandre: According to me, it is even worse than the CAVE. The only thing that could be great is the score report where you can see the video of your performance but being represented as cylinders is not good because it is not representing the human body in detail and correctly. Only in our feet they are already so many things we have to position correctly.

Alysson: The three kinds of feedback are very helpful, especially the slow motion one. Sometimes teachers film the class so that you can see what you did, and it is often a shock to see what you have done. This is the reason why I think the slow-motion is very helpful.

But the fact that we have to wear a capture suit is a big disadvantage. It is, I suppose, not comfortable. It is really important that our teacher can see our muscles, so we normally have to wear very light clothes. So, the capture suit would not be good at all.

Cynthia: I like it for playing but for training I think it would be very overwhelming. It is actually the same concept as the CAVE but in worse because of the capture suit. The only thing I appreciate is the slow-motion replay.

- In your opinion, is this VR appropriate for dance students?
 - To be alone?
 - What about the space?

Alexandre: No, for the same reasons as for the CAVE, but this VR is even worse.

Alysson: No. There is no interaction with the teacher which is a pity because it is nice to be able to ask questions and receive real feedback. According to me, it is better than the CAVE because you just need a wall where you can project the teacher. However, the fact that we need to wear a capture suit is really a big disadvantage.

Moreover, feedback in form of cylinders is not good, I need more details. Here we only receive a shape of something and that is not sufficient at all because we need to see the muscles too. Without that, the dance can be completely different.

Cynthia: No. I cannot imagine anyone who would appreciate using it as a training. Moreover, the feedback given in cylinders is a big disadvantage because sometimes teachers will tell you to use a muscle somewhere and with the cylinders you cannot see the muscles.

- What do you think about the feedback?
 - 3 types of feedback
 - In colour

Alexandre: It is good to have different kinds of feedback, but I do not think that 3 different feedbacks are necessary either.

I will always prefer to receive different feedbacks from different people so as to have their own/different opinion.

But in this case, the three feedbacks only focus on the technique. You will not receive any feedback on the emotions you convey or the way you breathe, which for me, is very important, as much as the technique.

And the fact of being reduced to cylinders spoils the score report.

Alysson: That is very good. But at the same time, I ask myself if three kinds of feedback are not a bit too much. The one I prefer is the slow-motion replay. If I had the opportunity, I would definitely use it.

Cynthia: I only like the slow-motion replay because it is nice to see yourself again, it is very helpful.

- According to you, is this feedback better than the one given by a teacher during the class?

Alexandre: No.

Alysson: No, I will always prefer to have interaction with the teacher.

Cynthia: No.

- Do you think the VR is a good way of communicating with the student?

Alexandre: No.

Alysson: Not really, for the same reason as the CAVE.

Cynthia: No. It is so unhuman like. I want a real person. Sometimes I am already scared to ask a teacher, so it is even worse with a machine.

- Would you like to train in a VR like this one? Why/why not?

Alexandre: No, even if it was available in my school. It must be very disturbing to have to wear glasses or the capture suit because it is as if we were no longer in the real world. The eyes are very important when you dance because you have to see where you position yourself. With the glasses I would have the feeling that I am lost.

Alysson: I think new technologies are becoming an important part of the future so I would like to try it but at this stage, however, it is not good enough for dancers.

Cynthia: I would appreciate trying it but not training there every day.

- Do you have any comments to add on this VR?

Alexandre: VR, as CAVE, only focuses on the technique, all the rest is not analysed and that is a pity.

Alysson: It is not possible to see our expressions or our musicality. To not have feedback for that is bad.

Cynthia: /

3. VideoTrace: the opinion of Belgian students

- Have you ever used an annotation tool? If so, was it in a dance context?

Alexandre: No.

Alysson: No. Last year our teacher filmed us and then handed written feedback on a piece of paper, but I would have liked to receive feedback on the video because then you can see better where you did mistakes.

Cynthia: No.

- What is your general feeling about this VideoTrace?

Alexandre: I like it. I think it is really interesting to film and then have the possibility to annotate directly the video we have taken. I also like the opportunity to slow down or even to stop the video.

But as I already said, I will always prefer having feedback from someone. Because even when you watch the video the emotions won't be visible anymore. However, emotions are really important for a dancer.

So, what could be very great would be that during class the teacher focuses himself 100% on the emotions we convey and then watch the video to focus on the technique.

Alysson: It is nice. I have experienced many times teachers that do not remember something. It might really help teachers to better focus. But if the teacher uses the video to give feedback, it means that, again, he will not be able to give feedback about the expressions or the musicality. I prefer to receive feedback about everything in class because details are important.

Cynthia: I think we do that a lot even without VideoTrace because we film ourselves a lot and then send the video to the teacher, or we watch it together. But usually, I film myself with my phone. I think we have more "work" to do when working with VideoTrace because we have to write things when we could simply be talking. It is thus easier and faster with our phone.

- Do you like the possibility of watching again and again your performance after having done it? Why/why not?

Alexandre: Yes. According to me, it is very interesting. I do that a lot with my smartphone. I like to film myself and then watch my own performance to correct my mistakes.

Alysson: Yes, it is very useful to be able to analyse our performance. It is a nice way to improve ourselves. I like to film myself, and this year, because I was alone in my house, I used to film myself a lot.

Cynthia: Yes. During the Covid-19 pandemic, I really learned to do that, and it did help me a lot. I really like to film myself because often teachers say things that we have to change but we do not understand what we have done wrong and thanks to the video we finally see, and we can start working on it.

- Do you think it could be useful to watch the performance again? Do you think it could help you to detect where you have made a mistake and why?

Alexandre: Yes of course because it gives us the opportunity to see some mistakes, we are not aware of when we are dancing.

Alysson: Yes.

Cynthia: Yes, because it allows us to see our mistake and to start working on them.

- Do you think it would be good for the teacher to focus entirely on your performance and watch the video later to give you a detailed feedback? Or do you prefer to receive feedback about technique, emotion, musicality at once during the class?

Alexandre: It could be interesting that the teacher just focuses on live emotions but does not deprive himself of giving technical feedback either. The teacher also needs to say what technical problems he sees at the moment. But it is interesting for him to watch the video afterwards to see things he would not have seen and thus be able to give more feedback.

Alysson: I think we need to receive feedback about the technique and about the expression and musicality also during class. But thanks to the video, the teacher can give us more detailed feedback after.

Cynthia: If you are a good teacher, you are already focusing entirely on the performance even if you just forgot something sometimes. Usually, they give a correction, and you correct it immediately, then another, etc.

- Do you think this annotation tool is an advantage in the way of communicating between the teacher and the student? Why/why not?

Alexandre: It is very nice to be able to annotate the video. It is a great way to express ourselves.

Alysson: Yes, it is great because you still have the real interaction in class (not like the CAVE) and then you also get feedback in that digital tool.

Cynthia: Yes, it is because everything is written down and then you can always go back there to read again.

- If I were offering an annotation tool to your school, would you use it? Why/why not?

Alexandre: Yes. Especially for the classical ballet school. Because it gives us the possibility to film and watch afterwards. It is also possible with your phone but with VideoTrace, you have more details as you can annotate the video.

Alysson: Yes, very helpful because you can still go to school (what I prefer above everything) but it is nice that when you go back home you can watch the correction or watch again your performance.

Cynthia: Yes, for the advantages I cited before.

4. DiViDU: the opinion of Belgian students

- Did you have to write assessments about your work during your dance studies?

Alexandre: Yes, we had to, and I didn't like it. We had to write assessments during the first year and we had to judge our work. But during the first year of dance, you don't dance as well as you would like to, so it was often sad to see how many mistakes we did. And then writing about these mistakes wasn't fun at all.

Alysson: Not very often. It happened sometimes after we did a piece of a choreography, for example writing down corrections. Or when he had an examination just to write down our thoughts. Writing is a good tool to reflect but for me it is not really helpful. Reflect on my work doesn't really help me to better understand something. If I do not understand, I just ask the teacher. That is a reason why I do need real contact with the teacher.

Cynthia: Yes, after the exams but not every year. The goal is to see if you think as the teacher. You have to have similar answers than the teacher's answers. If you say the opposite, it is bad because you have to be able to recognize your difficulties so you can work on them. For example, if your teacher says that you do not have enough strength and you say you do have enough strength, that is very bad. You need to explain in detail which muscles you do not use properly; you need to be very precise and convincing.

- If you had to write such assessments, would you have liked to have a technology like DiViDU? Why/why not?

Alexandre: Yes, it could have been useful, but we can also register with our phone. And I think that with our phone it is even faster. According to me, if DiViDU was available on the phone that would be useful.

Alysson: No because reflecting on my work doesn't help me. Now if it was really an obligation, yes why not but the thing is that with our cell phone we can also record and film. So that would be great maybe to have access to DiViDU on the phone.

Cynthia: Yes, it could have been useful because we get some questions and so we do not have to dig into our memory. It is a good way to start thinking. While reflecting you know yourself better because you see yourself and you understand something. But after, you need to be able to know yourself and to feel when you do something wrong without having to watch the video again.

- If you did not have to write such assessment, have you ever used something like this DiViDU application in another context?

Alexandre: /

Alysson: /

Cynthia: /

- Do you think DiViDU could help students to write reflection assessments on their works? Why/why not?

Alexandre: Yes. It is really hard to remember every details of our performance. Being able to watch it again gives us the opportunity to reflect on it.

Alysson: I think that could be very helpful for younger students. Today I do not watch again my performance a lot, but for younger dancers that is a very good way to improve themselves.

Cynthia: Yes, but I think it is important to be able to reflect on your work and correct yourself without a video too. So, a nice idea could be to have to write assessments two times a year, first time with the help of DiViDU and second time without so you learn to feel yourself.

- Do you think this kind of annotation tool gives the opportunity to students and to teachers to communicate better than if it was only an oral communication?

Alexandre: I prefer the oral communication, but it is still very interesting because here you have more time to think. You do not need to give an answer really fast; you can think, you can reflect on your work. It is a deeper communication.

Alysson: According to me, it is not perfect or ideal, but it is still something. For a teacher it is nice to see if students can understand their difficulties. It is a nice way to see if students understand their mistakes. So, it is still a good interaction but not as good as real talking.

Cynthia: It would never be better than the oral communication because it is not real. It is more a communication with yourself actually.

- Do you agree with the fact that if dance students have the possibility to watch their performance again it can help them to better understand the feedback?

Alexandre: Yes, I do. When you just ended a performance sometimes you are still “on it” and not ready to understand every correction the teacher is giving. The possibility to watch your performance gives us the opportunity to understand what the teacher told us.

Alysson: Yes.

Cynthia: Yes definitely. As said before, you think you have done something good but when you watch the video you notice it wasn't as good as you thought.

5. DanceForms: the opinion of Belgian Students

- What is your general feeling about DanceForms? Do you like it? Why/why not?

Alexandre: It is really impressive, but I think you need to work a lot to understand the software and to use it properly. I really wonder who uses that!

Alysson: Very nice to create choreography like that. I really appreciate that the bodies aren't anorexic here. However, it is very specific, and the software has a lot of details. It is very nice to create a choreography but maybe too many details to fully understand it. I think it could really help teachers to create a group piece when they are alone at home because today with the Covid-19 situation, I experienced some teachers saying they didn't know how to create a piece alone at home.

Cynthia: I think creating a choreography with that software takes a long time. It is great that you can change the movements but again, if you change them, it takes longer to create the choreography. Moreover, I think choreographers wouldn't like to just pick things from a palette, they want to create. And if they were only picking up movements from the palettes, all the choreographies will be finally the same just with the movements in a different order. Because the movements in ballet are really precise and strict that could work but for contemporary it is completely impossible.

- Do you think it is great to be able to compare the real performance you see in the "performance window" with the "stage Window" where you can see the correct place of each student?

Alexandre: I think it is nice to get an overall view of the choreography and the piece. But you can compare your performance and the one of the teachers only by filming everything on your phone, so ...

Alysson: Yes, I think it is great to have the two windows next to another.

Cynthia: Yes, I think this is good and I even think that teachers might be surprised to see that students perform actually better than what was planned in the Stage window.

- Do you think it could help you to see where you have to be placed and how in relation with other students (in the Stage window) before starting to dance? Why/why not?

Alexandre: Not really. Personally, I wouldn't like to learn a choreography like that. For me the traditional way is much better. As I already said, all these technologies don't have what is the most important to us, dancers: contact, have a real teacher.

Alysson: Yes, a lot! A lot because placement sometimes is very tricky, and it is possible that we do not always understand what the teacher wants from us. So, it would be very nice to understand easily how we should be placed, and I think it could be a good time-saver.

Cynthia: Yes, because often teachers are saying “that is the vision I have for that” and us, dancers, we really don’t understand what the teacher wants. So, that might be a good time-saver mainly for classes where there are a lot of dancers and thus a lot of figures.

- Do you like the possibility to create your own movements thanks to DanceForms? (the possibility to change a position from the palette and then save it with your changes, like the 1st Arabesque I showed you)

Alexandre: I appreciate the fact that we can change a move if we do not like it. But I wouldn’t create a choreography on DanceForms. The only thing I could do is use it only to create things that the human body can’t do. But otherwise, I prefer to film myself and compare it with the teacher.

Alysson: Yes, I do but it seems quite complex to add so many movements for a whole choreography. However, I really appreciate the possibility to change or modify a movement as we want.

Cynthia: Yes, I would use it, but I would change every movement because if you do not change them, then it is not your movement, it is the one of a computer so it will never be your piece.

- If I were offering DanceForms software to your school, would you use it? Why/why not?

Alexandre: No. Not in a serious way.

Alysson: Yes, even if it seems complex, fortunately a user guide is provided. I think dancers and teachers would really love to try DanceForms and use it.

Cynthia: No because I can create a choreography without it. For beginners that are not so good to make pieces, it could really help them and then they will be able to create a choreography on their own.

- Would you like to add any comments?

Alexandre: /

Alysson: Guidelines offered in 3 languages is good but maybe DanceForms should be more intuitive or easier to use.

Cynthia: I would never go to see a performance that was made by the software. Or I would go only to see if they changed the movements.