

Table 8 – Frequency of teachers' responses to the questions in Likert scale about video lectures

Statement	Frequency (%)							Med	Mod
	1	2	3	4	5	6	7		
1. The video lecture style can interfere in the learning process	-	-	2.6	20.5	12.8	15.4	48.7	6	7
2. The video lecture in which the teacher speaks fast and with great enthusiasm is more engaging	2.6	5.1	12.8	17.9	30.8	10.3	20.5	5	5
3. The video lecture in which the teacher talks rhythmically facilitates understanding	-	2.6	7.7	12.8	15.4	23.1	38.5	6	7
4. The video lecture that interpolates teacher's image with slides is more attractive	-	2.6	-	17.9	23.1	23.1	33.3	6	7

The result for students and teachers regarding statements about video lectures was compared by using inferential statistical analysis. The hypotheses concerning the statements assessed by respondents were elaborated based on Table 7 and Table 8 to verify if the difference between medians is statistically significant. The null hypothesis (H_0) states that the medians of the two populations are equivalent and the alternative hypothesis (H_1) states that the medians of the two populations are not equivalent. The hypotheses were tested by means of Mann-Whitney test using the statistical software Minitab (<http://www.minitab.com/>). In Minitab, the Mann-Whitney test considers as null hypothesis that two independent groups have equivalent medians. The Mann-Whitney test was performed considering a significance level $\alpha = 0.05$ and a 95% confidence interval.

Table 9 shows the results (p-value) of the Mann-Whitney test. The conclusion for statements 1, 2, 3 and 4 is that the H_0 hypothesis of equivalence between medians of the two populations (students and teachers) cannot be rejected. Thus, there is statistical evidence that students and teachers have equivalent agreement level regarding the four statements about video lectures.

Table 9 – Results of the Mann-Whitney test regarding statements about video lectures

Statement	p-value	Conclusion
1. The video lecture style can interfere in the learning process	0.7577	Accept H_0
2. The video lecture in which the teacher speaks fast and with great enthusiasm is more engaging	0.9064	Accept H_0
3. The video lecture in which the teacher talks rhythmically facilitates understanding	0.9559	Accept H_0
4. The video lecture that interpolates teacher's image with slides is more attractive	0.6752	Accept H_0

5. Conclusion

The survey with students and teachers of technical courses has resulted in important data about preferences in relation to video lectures. The results obtained using descriptive statistical analysis mainly showed the preferences regarding video lecture styles and duration of video lectures. The comparison between preferences of students and teachers indicated a conflict between the preferred style of students, tutorial style, and the preferred style of teachers, voice and presentation style. However, the style called image, voice and presentation is the second style in both preferences. Specifically, regarding production of video lectures by teachers, most of them expressed not knowing

any method or technique for producing video lectures. Despite this last result, most teachers also said that are predisposed to learn new methods and techniques for producing video lectures and to learn how to use new production tools.

The results obtained by inferential statistical analysis showed that both students and teachers agree that video lecture style can interfere in the learning process, video lecture in which the teacher speaks fast and with great enthusiasm is more engaging, video lecture in which the teacher talks rhythmically facilitates understanding, and video lecture that interpolates teacher's image with slides is more attractive. The results indicated that there is statistical evidence that students and teachers have equivalent agreement level regarding these statements about video lectures.

The results suggest some directions for planning a training program for teachers on production of video lectures. For example, such program should emphasize the production of short video lectures, reinforce the styles preferred by students, include some method or technique of production, and adopt tools preferred by teachers. Specifically, regarding training in a tool for producing video lectures, some activities could provide predefined templates and systematic diagrams to produce video lectures in different styles. Moreover, the training could provide strategies to control the duration of video lecture during production and analyze the teacher's voice to indicate the need for changing the pace. Finally, a training strategy could link a method or technique with tool features to support video lecture production or at least associate them to the stages of planning (pre-production), recording (production) and editing (post-production).

One of the future works that could continue the study presented in this paper involves a deeper investigation of aspects related to video lecture production by teachers. The predisposition to learn new methods and techniques for video lecture production and to learn how to use new production tools suggests the need for further research to identify difficulties that teachers encounter in this task. Ultimately, this study benefits researchers from different areas by giving them information related to the use and production of video lectures. Thus, the results represent advances in the state of the art for video lectures mainly in the context of their use by students and teachers and its preferences.

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