OVERCOMING COMMUNICATION BARRIERS IN ONLINE TEACHING: UNDERSTANDING FACULTY PREFERENCES

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ABSTRACT

The success of any online learning program highly depends on the commitment of the online teaching faculty, thus online teaching faculty preferences and possible issues need to be well understood and incorporated into the online program structure. Here we aim to analyze faculty preferences towards online teaching techniques and tools from a communication point of view: several different ways of student-teacher communication for delivering the class material are distinguished and analyzed. This is a continuation of authors' previously presented work, "Perception and Preferences of Faculty for Online Learning" that analyzed departmental differences of faculty preferences on online teaching techniques and tools. Further investigation of these differences is presented here with respect to faculty demographics such as gender, age, as well as their job title (tenure status: tenure, tenure-track or non-tenure, status: full-time or part-time), and previous online teaching experiences. These research questions have been investigated via a survey conducted at the University of North Carolina at Charlotte. The results show that there are variations among these factors mentioned above.

INTRODUCTION AND BACKGROUND

Online education is a strategic initiative that has been applied by a number of universities over the past decade for growth. Effective communication is essential for a high quality online education, thus, before deploying a new online education program, it is very important to understand communication barriers and challenges that can affect the quality and the pace of online program growth. In this study, we focus on an often neglected aspect of online education design which is the faculty preferences. This study is an extension of work previously presented by Ozelkan and Galambosi (2009, 2011), who investigated departmental differences of preferences of students and faculty towards online learning techniques. Here, further analysis is provided on how do different factors such as colleges, gender, age or employment status (full-time or part-time) affect the online faculty teaching preferences. The analysis is based on a survey conducted at University of North Carolina at Charlotte among the online teaching faculty, and the results of this survey are analyzed and presented here.

While many papers have been published on efficient online teaching (an example is Bender, 2003), we will refer back to the literature review in our previous work in Ozelkan and Galambosi (2008, 2009, 20011). In addition, some additional relevant literature might include the work of Caron et al. (2007), Durrington et al. (2006) and Wang (2007), who provided some guidelines on creation of effective online learning environments. The work by Dennen et al. (2007) might also be important as it summarizes several best practices for instructors: 1.the importance of replies and timely feedback, 2. The importance of instructor presence 3. clear expectations. Attitudes toward online education are examined by Uzunboylu (2007), McMahon et al. (1999) and Ropp (1999).

SURVEY ANALYSIS

An online faculty survey was conducted at University of North Carolina at Charlotte. The university has currently 118 faculty members teaching online courses in six colleges: Arts & Architecture, Computing & Informatics, Education, Engineering, Health & Human Services, and Liberal Arts & Sciences. 62 of them replied to the survey yielding a 53 % response rate. Based on the survey results, the demographics of the participating faculty indicate that the majority of the respondents were female (67%), ages 41-50 (33%), dominantly Caucasian (90%), mostly from the College of Education (37%, Engineering faculty was 15% of the respondents), most of them work full-time (62%), most are tenure-track or tenured (58%), and most are Assistant Professors (26%) and Associate Professors (24%).

The following is a list of online teaching methods for delivering the class material analyzed here:

Asynchronous Online Teaching: None of the course activities (including lectures, office hours and student presentations) are delivered live in real time. Lectures are posted either as Lecture notes, presentation slides or pre-recorded presentations with audio and/or video. Interactions take place only online through e-mails, and discussion groups.

Synchronous Online Teaching: Lectures/presentations are delivered live in real time on the web. Online live lectures are scheduled every week similar to a traditional on-campus class. The lecture is interactive where students can ask questions in real time. The instructor and the students may use computer microphones/speakers/headphones or a phone line for real-time live communication. The students listen and view a presentation online. There can be web-cameras showing students and/or instructor presenting.

Mixed Online Teaching: This method mixes Asynchronous with several Synchronous learning components to deliver the lectures. e.g. instructor conducts a live web session at the beginning of the semester to get to know the students and their expectations better, and during the last class students present term projects

Online Blended with On-Campus Teaching: incorporates some on-campus sessions as in the traditional sense depending on the location of students. For example in-person office hours, on-campus first and last classes, or periodic on-campus class meetings (e.g. once a month) can be scheduled.

Note that traditional or On-Campus courses can use support tools such as Moodle/WebCT/Blackboard solely for posting materials or announcements for the on-campus students, but here they are not considered as "online" learning.

Figure 1 shows the results for the rating of online teaching techniques for different colleges. The pattern in general seems to be that, looking at the overall picture, Asynchronous teaching and Mixed (Async w/ some Sync) are preferred the most, and Synchronous teaching is preferred the least. Slight changes can be detected to this pattern by looking at the different colleges. While the top two highest scores remain Asynchronous and Mixed (Async w/ some Sync) in both Health and Human Services and in Liberal Arts and Sciences, in Education the highest two scores get reversed, and in Engineering it is also Mixed (Async w/ some Sync) and Blend w/ Campus Office hours. The lowest score follows the general overall pattern in Health and Human Services for Synchronous being the least preferred, but the least preferred in Engineering is Async w/ Rec Audio Lecture and the same is tied as one of the least preferred in Education and Liberal Arts and Sciences along with Sync w/ Student Video. In general, it is interesting to note that synchronous techniques seem to be rated higher in engineering college than the other colleges. While shown on the figure two colleges with sample size of 2 each (Art and Architecture and Computing and Informatics) were not considered here for discussions due to their very small sample size. Also note that Health and Human Services seem to have the highest range of scores between 1.8 and 4.1 while Engineering has the lowest range between 2.8 to 3.8.

Figure 2 shows the results for the rating of online teaching techniques based on gender. In general, looking at the overall picture, Asynchronous teaching is preferred the most, tied with Mixed (Async w/ some Sync) and Synchronous teaching is preferred the least. Both female and male preferences follow the same pattern but in general males seem to rate online techniques higher than the females (except for the Asyncronous). Another observation that can be made is that females (between 2.4 and 3.7) tend to have a bigger difference between

the most and least liked teaching methods than males (between 2.8 to 3.6).

Figure 3 shows the ratings of online teaching techniques based on age. Two age groups, the 41-50 and the >60 seem to be very fond of Asynchronous teaching and not very interested in Synchronous or Sync w/
Student Video type of teaching with the differences between these methods very strongly expressed. On the other hand, both the 31-40 and the 51-60 groups prefer most the Mixed (Async w/ some Sync) teaching and dislike the Async w/ Rec Audio Lecture method. The differences for these latter age groups don't seem to be as strong as with the other two age groups discussed above. Also, the scores in general seem to be the lowest for the >60 age group. The age group <30 is not included in this discussion due to its sample size of 1.

Techniques	Arts + Architecture	Computing & Informatics	Education	Engineering	Health & Human Services	Liberal Arts & Sciences	Grand Total
Asynchronous	3.5	5.0	3.4	3.4	4.1	3.5	3.6
Mixed (Async w/some Sync)	2.0	2.5	3.9	3.8	3.6	3.2	3.6
Blend w/Campus Office hr	4.0	2.5	3.1	3.8	2.8	3.0	3.1
Blend w/Campus 1st/last class	3.0	2.5	3.0	3.6	2.8	3.1	3.0
Blend w/Campus Periodic Classes	3.0	1.5	3.3	3.6	2.5	2.9	3.0
Async w/Rec Video Lecture	3.0	2.0	2.9	3.2	3.5	2.5	3.0
Sync w/Rec Lecture	2.0	1.0	3.1	3.3	2.3	3.0	2.8
Sync w/Faculty Video	2.0	1.0	3.0	3.1	2.6	2.5	2.8
Async w/Rec Audio Lecture	3.0	2.0	2.7	2.8	3.2	2.2	2.7
Sync w/Student Video	3.0	2.5	2.7	2.9	2.5	2.2	2.6
Synchronous	1.5	1.0	2.9	3.0	1.8	2.7	2.5
Number of responses	**2**	**2**	**23**	**9**	**13**	**13**	**62**

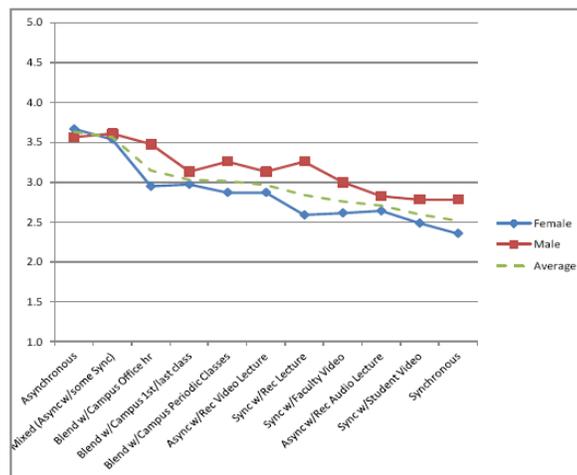Figure 1. Rating of Online Teaching Techniques for Different Colleges.

Figure 2. Rating of Online Teaching Techniques based on Gender.

Figure 4 shows the rating of online teaching techniques based on full-time versus part-time employment. While the overall pattern seems to be similar for both these employments statuses, it seems that part-time teachers gave lower scores on the majority of these teaching methods and part-time employees expressed a somewhat stronger dislike towards synchronous methods.
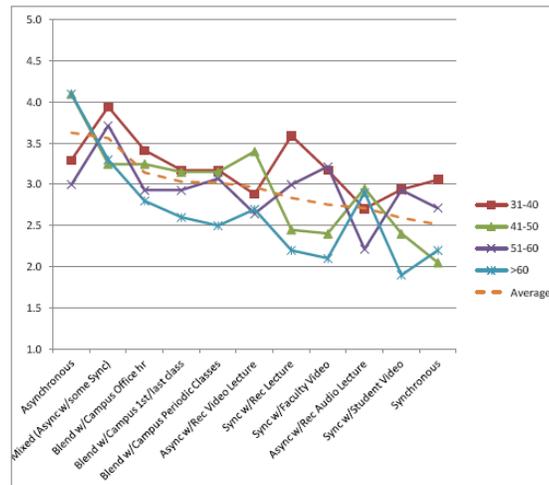
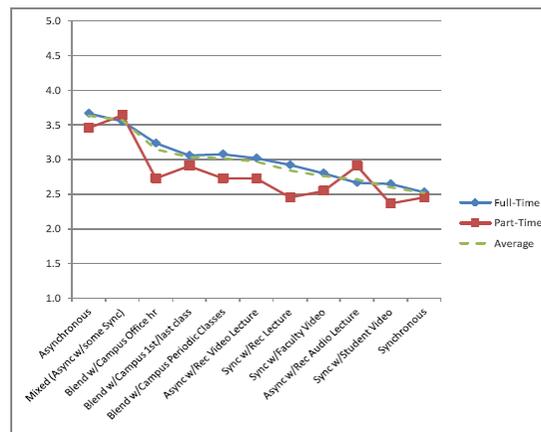Figure 3. Rating of Online Teaching Techniques based on Age.

Figure 4. Rating of Online Teaching Techniques based on Full vs. Part-time employment.

Figure 5 shows the rating of online techniques based on tenure status. There doesn't seem to be a big difference in the three tenure status categories: On the other hand, general trend shows that tenure-track faculty rate online techniques higher than the non-tenure track faculty and tenure track faculty seems to be favoring blended techniques (especially with periodic on-campus classes) and synchronous with faculty video more than the other faculty.
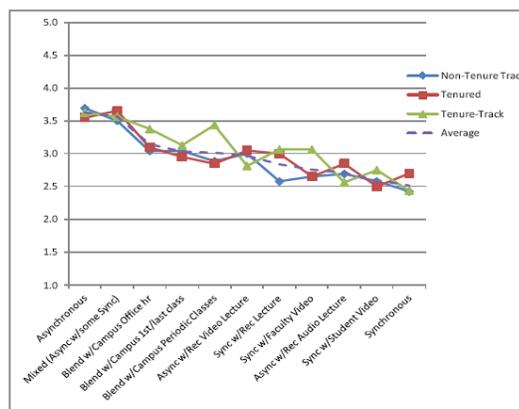

Figure 5. Rating of Online Teaching Techniques based on Tenure Status.

Figure 6 shows the rating of online teaching techniques based on positions. Please note that the Clinical Assistant Professor and the Full Time Faculty Associate positions are not discussed here due to a very small sample size. Full professors seem to have slightly different preferences: Mixed (Async w/ some Sync) is their top choice and Synchronous methods seem to be the least preferred for them. In

addition, full time lecturers or instructors seem to have a really strong preference for Asynchronous methods. There are definitely preference differences between assistant professors and full professors regarding the usage of blended techniques, asynchronous versus synchronous techniques. These findings seem to show correlations with the results shown earlier related to age and tenure status.

Techniques	Assistant Professor	Associate Professor	Clinical Assistant Professor	Full Professor	Full-time Faculty Associate	Full-time Lecturer or Instructor	Part-Time Faculty/Adjunct	Average
Asynchronous	3.7	3.8	2.3	3.1	4.0	4.4	2.7	3.6
Mixed (Async w/some Sync)	3.6	3.7	3.7	3.6	4.0	3.4	3.4	3.6
Blend w/Campus Office hr	3.3	3.2	3.3	3.1	4.0	2.9	3.0	3.1
Blend w/Campus 1st/last class	3.1	2.9	3.0	2.9	3.0	2.9	3.4	3.0
Blend w/Campus Periodic Classes	3.4	2.8	3.7	3.0	3.0	2.5	3.3	3.0
Async w/Rec Video Lecture	2.9	3.1	2.0	2.9	3.0	3.2	2.7	3.0
Sync w/Rec Lecture	3.0	3.2	2.3	2.4	3.0	2.5	3.0	2.8
Sync w/Faculty Video	3.1	2.6	2.3	2.7	3.0	2.5	3.1	2.8
Async w/Rec Audio Lecture	2.4	2.8	1.7	3.1	3.0	2.9	2.7	2.7
Sync w/Student Video	2.8	2.5	2.3	2.6	3.0	2.5	2.9	2.6
Synchronous	2.3	2.7	3.7	2.6	3.0	2.0	3.0	2.5
Number of responses	16	15	3	7	1	13	7	62

Figure 6. Rating of Online Teaching Techniques based on Position.

Figure 7 illustrates the rating of online teaching techniques based on previous participation in an online class as a student. It seems that previous participation in an online class helps to create a stronger preference for Asynchronous and a weaker preference for Synchronous techniques. Those faculty who took an online class, seem to also value more the lecture recording both in video and audio formats.

Figure 8 is about the rating of online teaching techniques based on online teaching experience. Asynchronous seems to be highly preferred regardless on experience but more experienced teachers seem to also have developed a similar preference for Mixed (Async w/ some Sync) methods. Interestingly, novices at online teaching seem to also highly prefer Blend w/ Campus Periodic Classes, however, as they get more and more experience, they seem to favor it less and less. It is worth noting that experienced online faculty prefers more the Asynchronous approach with audio recording more compared to the less experienced faculty and also more than a prerecorded lecture video.

Figure 9 is about rating the online teaching techniques based on previous training online. The top two choices seem to be the same for teachers with or without previous training: Asynchronous, and Mixed (Async w/ Some Sync). Synchronous is the least preferred but for trained ones Sync w/ Student Video is slightly less preferred.
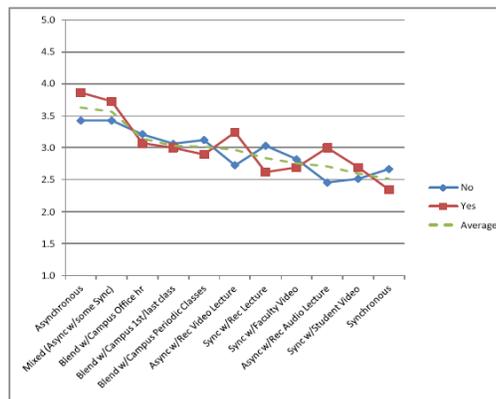

Figure 7. Rating of Online Teaching Techniques based on Previous Participation in an Online Class.

Figure 10 is rating of online teaching techniques based on online teaching proportion. Balanced teachers seem to have the highest scores for almost all of these methods with the most preferred being the Mixed (Async w/ Some Sync). On the other hand, All and Mostly Online teachers seem to really dislike the blended approaches. Mostly online teachers have the lowest preferences for most of these techniques but unlike all the other teachers, they seem to like Async w/ Rec Audio Lecture much, even though the highest preference is still Asynchronous.
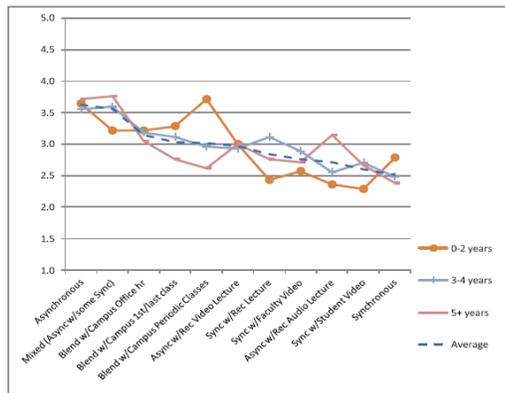
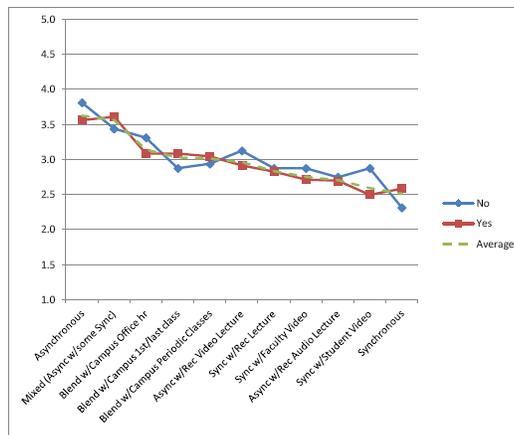Figure 8. Rating of Online Teaching Techniques based on Online Teaching Experience.

Figure 9. Rating of Online Teaching Techniques based on Previous Training on Online Teaching.

Figure 11 shows rating of online teaching techniques based on online teaching level of the courses. Graduate classes seem to have higher values for almost all the categories than teachers of undergraduate or both graduate + undergraduate classes. Asynchronous and Mixed (Async w/ Some Sync) seems to be the most preferred techniques regardless of the class levels taught. Interestingly, while Async w/ Rec Audio Lecture is among the highly preferred methods for teachers of both Undergraduate + Graduate classes, the same method is the least preferred for teachers of undergraduate classes.
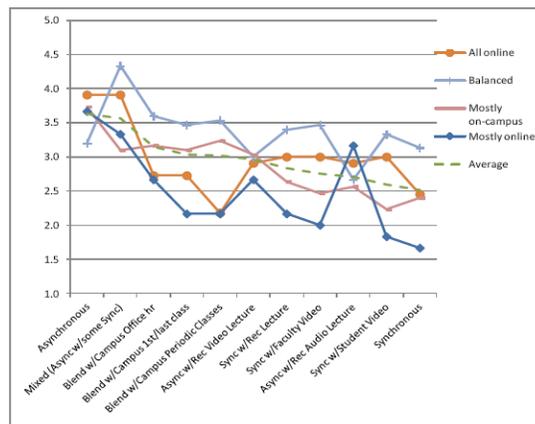

Figure 10. Rating of Online Teaching Techniques based on Online Teaching Portion.
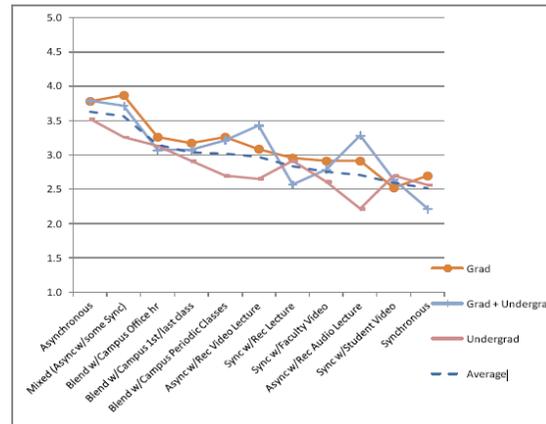
Figure 11. Rating of Online Teaching Techniques based on Online Teaching Level.

SUMMARY AND CONCLUSIONS

In this paper, we analyzed faculty communication preferences for online teaching based on a faculty survey, considering different factors such as colleges, and demographics such as gender, age, as well as their job title (tenure status: tenure, tenure-track or non-tenure, status: full-time or part-time), and previous online teaching experiences. The teaching techniques included: Asynchronous, Synchronous, Mixed and Blended. Based on our analysis and discussion above, the following detailed conclusions seem to be valid:

Overall, Asynchronous teaching and Mixed (Async w/ some Sync) are preferred the most, Synchronous is preferred the least. Perhaps because Synchronous methods require higher preparation time, higher technical knowledge in terms of the recording/broadcasting and also possibly being out of their regular classroom element. Also, Synchronous teaching takes away some of the advantages of Asynchronous online teaching in terms of time and location flexibility.

For colleges, Health and Human Services seem to have the highest range of scores between 1.8 and 4.1, while Engineering has the lowest range between 2.8 to 3.8. This might mean that there is a wide range of teaching requirements in the Health and Human Services but Engineering seems to be more unified. Also, Synchronous techniques are rated higher in Engineering than the other colleges.

Based on gender, females (between 2.4 and 3.7) tend to have a bigger difference between the most and least liked teaching methods than males (between 2.8 to 3.6) pointing us to a more homogenous male population of online teachers than females. Both female and male preferences follow the same pattern but in general males seem to rate online techniques higher than the females.

For age, both the 41-50 and the >60, they seem to be very fond of Asynchronous teaching while not very interested in Synchronous or Sync w/ Student Video type of teaching with the differences between these methods very strongly expressed. It seems that these two age groups are experienced in their teachings and they have their own preferences worked out over the years. In general, (except for the ratings for the Asynchronous) younger faculty seems to rate online techniques higher. Techniques requiring more technology involvement (such as synchronous and video recording) are not as favored by the older faculty as the scores in general seem to be the lowest for the >60 group.

Part-time teachers gave lower scores on the majority of these teaching methods while also expressing a somewhat stronger dislike towards synchronous methods. These conclusions probably originate from the part-timers being on-campus for a limited time (unlike their full-timer counterparts), thus making it more difficult for them to learn the corresponding technological requirements.

While there doesn't seem to be a big difference in the three tenure status categories, general trend shows that tenure-track faculty rate online techniques higher than the non-tenure track faculty and tenure track faculty seems to be favoring blended techniques (especially with periodic on-campus classes) and synchronous with faculty video more than the other faculty.

Full time lecturers or instructors seem to have a really strong preference for asynchronous methods possibly because with a full-time teaching workload the amount or technical preparation might become less manageable for Synchronous classes.

Previous participation in an online class helps to create a stronger preference for Asynchronous and a weaker preference for Synchronous. These teachers have seen it before and experienced it firsthand as students, which seemed to have reinforced their original beliefs towards these methods.

Asynchronous seems to be highly preferred regardless of experience but more experienced teachers seem to also have developed a similar preference for Mixed (Async w/ some Sync) methods. In other words, the original aversion towards Synchronous methods somewhat fades away with experience. On the other hand, novices at online teaching seem to also highly prefer Blend w/ Campus Periodic Classes, however, as they get more and more experience, they seem to favor it less and less. It is worth noting that experienced online faculty prefers more the Asynchronous approach with audio recording compared to the less experienced faculty and also more than a prerecorded lecture video.

The top two choices seem to be the same for teachers with or without previous training: Asynchronous, and Mixed (Async w/ Some Sync). Synchronous is the least preferred but for trained ones Sync w/ Student Video is slightly less preferred among all.

Balanced teachers seem to have the highest scores for almost all of these methods while All and Mostly Online teachers seem to really dislike the blended approaches. It seems that their perception of themselves as online teachers determines that they will not have to have on-campus classes.

Teachers of graduate classes seem to have higher values for almost all the categories than teachers of undergraduate or both graduate + undergraduate classes, which might mean that teachers of graduate classes find online teaching the most rewarding, regardless of the actual method of teaching. Interestingly, while Async w/ Rec Audio Lecture is among the highly preferred methods for teachers of both Undergraduate + Graduate classes, the same method is the least preferred for teachers of undergraduate classes. Teachers of undergraduate classes do not seem to value the Async w/ Rec Audio Lecture for their undergraduate education.

The above results indicate that faculty preferences do not only vary across colleges, but also demographics such as gender, age, as well as

their job title (tenure status: tenure, tenure-track or non-tenure, status: full-time or part-time), and previous online teaching experiences can be important factors. We believe that a mismatch of these preferences with the adopted online communication/teaching technique at an institution can constitute a significant barrier for the success of an online program.

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