Improving the teaching strategies of the prospective primary school teachers is one of the main objectives of the education faculties. However, these objectives may not always be achieved. In this descriptive study, thirty-five third-year prospective teachers’ science lessons were videotaped and analyzed for a number of variables (wait-time, halting time, and other related variables) that are related to questioning in a learning-teaching environment. Wait-time and halting-time utilized between this and other related research findings were compared. Implications for teaching were also made.

Keywords: Wait-time; halting time; education faculty; questioning; prospective teacher; primary school; teaching.

1. Introduction

Among all education faculties, the aim is to improve teacher candidates’ teaching strategies. The strategies contain questioning and listening abilities as well. Teachers have to ask proper questions and listen to their students carefully to get their meanings so as to help them in their difficult learning sessions. According to the programs of the education faculties, questioning and listening skills have to be undertaken and improved within the teaching principles and methods and teaching of Turkish language lessons (YÖK, 2007). One of the variables concerning questioning and listening skills is the wait-time.

Rowe (1974a) states two kinds of wait-time: wait-time 1 is the initial wait-time that the teacher waits for the first response and wait-time 2 is the time the teacher waits for all class to respond to the same question. In this research, wait-time is described as the length of the pause a person speaks before further talk by the same or a different speaker (Altiere, M., A., and Duell, O. K., 1991).

Rowe, 1974c and Rowe, 1986 indicated that teachers use an average wait-time of about 1 second without considering cognitive level of the question. Tobin, K.G., found 0.5 s. (1980) and 0.9 s. (1984) of wait-times with Australian teachers. However, more recent studies (Jegede and Olajide (1995)) showed that Nigerian teachers use average wait-time of 3 seconds and (Baysen, 2003) found that Turkish teachers use average wait time of 2.4 s. The differences in the findings are consistent with the idea that wait-time durations are culture dependent (Ormrod, 2006).

The use of extended teacher wait-time was found to have positive effects on teacher and student discourse and higher science achievement in general. Research showed that with an extended wait-time utilization teachers talk...
less (Tobin, 1980), tend to probe more for student input (Tobin, 1984), tended to redirect student responses for peer evaluation- rather than evaluating them themselves (Tobin, 1984), ask fewer mimicry questions (Swift and Gooding, 1983 and Tobin, 1984), make fewer disciplinary remarks (Rowe, 1986), be more flexible in their responses (Rowe, 1986), increase their expectations for student performance (Rowe, 1986). On the other hand research findings showed that students whose teachers use extended wait-time, show improved performance on higher cognitive level test questions (Tobin, 1984 and Riley, 1986), talk more often (Samiroden, 1983 and Tobin, 1984), use longer response time (Rowe, 1974c), make speculative responses frequently (Rowe, 1974c), use longer student-student dialog time (Rowe, 1974c), make more student response evaluation of other students (Tobin, 1984), use more frequent evidence-inference statements (Rowe, 1974c), ask more pertinent topic related questions (Samiroden, 1983 and Rowe, 1986), make more unsolicited responses (Rowe, 1986) and are less likely to fail to respond (Rowe 1974c and Rowe, 1986), use high-level reactions following student responses (Tobin, 1984), use questions requiring additional information more frequently (Tobin, 1984), reserve more time for elaborating on their responses (Tobin, 1984), confuse less (Rowe, 1974a) and slow learners offer more questions and more responses (Sadker, 1977).

In a study with young children it was found that the use of wait-time is important (Davenport, 2003). Altiere (1991) found that students prefer lesson with a longer wait-time reasoning that it would produce more learning. Wait-time of 3 – 5 s. was proposed by a number of researchers (e.g. Tobin, 1984, Chin, 2004 and Riley, 1986).

These findings are consistent with the idea that students need more time for information processing (Gagné, 1977) of especially higher-level questions than assumed (Altiere and Duell 1991).

On the other hand Collette and Chiapetta (1989) stated that a series of closed questions in general does not necessarily require silence and wait time.

Although most research findings showed improvement in performance using extended wait-time, Duell, O.K. (1995) found that extended wait-time did not improve students’ performance and can lower higher cognitive achievement in university students (Duell, 1994). Another study with a small group showed opposite findings (Matt and Shannon 2007) and yet another study showed that wait-time can cause teacher anxiety (Honea, 1982).

Halting time is another important questioning and listening variable- it is related to wait-time in that teacher halts and waits for students to think. Halting time is mostly used whenever the subject is difficult or complex for the students and it gives time to the students to digest what has been said until that instance. During this time teachers observe their students to understand if they are with them (Carin, 1989).

2. Method

This descriptive study was conducted in order to find out the prospective teachers’ wait-time and halting time utilizations and some other related questioning and listening variables: the number of teacher questions per minute, length of student responses for each question, the number of student questions in a lesson, length of student opinions per minute, length of teacher-student and student-student dialogs. The duration of utterance was measured in seconds with an accuracy of 0.1s.

2.1. Participants

Thirty five Turkish teacher candidates participated in this research. The teacher candidates were in their third year in Education Faculty Primary School Teacher Education program. Of these twenty four were female and eleven were male.

2.2. Procedure

In this study thirty five third year prospective teachers’ ‘Science and Technology’ lessons were videotaped. The lessons were followed by the prospective teacher’s classmates and the researcher himself (first name). The teaching environment was prepared by the prospective teacher - both physically and socially - in charge of that lesson and the student presenting the lesson was given the chance to organize his/her classmates as he/she wanted. The subjects were chosen by the prospective teachers from the primary school science and technology program but every candidate were made to choose different subject.
2.3. Data analysis

The videos were watched by both researchers and analyzed for a number of variables which are related to questioning in a learning-teaching environment: wait-time, the number of teacher questions per minute, length of student responses for each question, the number of student questions in a lesson, length of student opinions per minute, length of teacher-student and student-student dialogs and length of teacher halting times. Resolutions of the conflicts were made before deciding the results.

3. Results, Discussion and Implications

The analyses of the lessons showed that prospective teachers use (Figure 1) containing our other findings (Baysen (2003)) so that a comparison can be made between prospective teachers and teachers of the same culture:

- an average wait-time of 2.36 s.
  - which can be classified as to be between short and medium wait-times (Riley, 1986),
  - is consistent with some other studies’ findings (e.g. Olajide, 1995),
  - can be classified as being less than most researchers proposed (e.g. Tobin, 1984),
  - shows culture dependent of the wait-time utilization, as there is no significant difference between this average wait-time and the one found in Baysen (2003).
- an average of 1.28 question per minute. This is consistent with the teachers asking 2-3 questions per minute, which can still be categorized as a “rapid bombing rate” (U.S.A. (Sadker, 1977)).
- an average halting time of 0.2 s. This result can be thought of to be an optimistic one -0.2 is more than 0 (Figure 1), but prospective teachers’ reasons of using halting time was found to be for mere recall of the next step of their presentation and not for observing their students to understand if they are with them so the reason for halting time use can be attributed to the inexperience presentation properties of the prospective teachers.

The analyses of the lessons also showed that:

- average length of student responses per question is 3.31 s.
- average number of student questions per lesson is 1.14.
- average length of student opinions per minute is 0.32 s.
- average student-student dialogs per minute is 1.74 s.
- and
- average teacher-student dialogs per minute is 0.5 s.

These findings also showed that average length of student responses per question, average number of student questions per lesson, average length of student opinions per minute, average student-student dialogs per minute and average teacher-student dialogs per minute are less than fulfilling the criteria for a constructivist learning-teaching environment (Colburn, 2000).

It can also be concluded from these findings that the class time is dominantly used mostly by the teachers (average teacher-student dialogs per minute is accepted as the time used up by the students) —about %85 of the class time.

No significant differences between teachers’ and prospective teachers’ questioning and listening variables mentioned above was found. From this similarity it can be concluded that there isn’t any improvement of these variables were achieved during the three years of formal education and the teachers have the property of utilizing short wait and halting time and have the intention of dominating the class time before starting their career.

On the other hand the findings of Baysen 2003 showed that when extended wait-time is utilized average length of student responses per question, average number of student questions per lesson, average length of student opinions per minute, average student-student dialogs per minute and average teacher-student dialogs per minute increases dramatically, so it can be recommended to include the wait-time and halting time subjects into the education faculty programs as important questioning and listening variables.

Another study with the prospective teachers in their presentation to the primary school students and a study comparing questioning and listening variables with the levels of the questions asked would be more practical.
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References


